Archaeology of South America

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12 Plates, 18 Text Figures, 1 Map

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12.	Japanese Costume	.20
13.	Gods and Heroes of Japan	.15
14.	Japanese Temples and Houses	.15
15.	Use of Tobacco among North American Indians	.20
16.	Use of Tobacco in Mexico and South America	.15
17.	Use of Tobacco in New Guinea and Neighboring Regions	.10
18.	Tobacco and Its Use in Asia	.25
19.	Introduction of Tobacco into Europe	.25
20.	The Japanese Sword and Its Decoration	.15
21.	Ivory in China	.60
22.	Insect-Musicians and Cricket Champions of China	.40
23.	Ostrich Egg-shell Cups of Mesopotamia and the Ostrich in Ancient and Modern Times	.30
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32.	Primitive Hunters of Australia	.30
33.	Archaeology of South America	.75

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CONTENTS

		PAGE
	List of Illustrations	3
I.	Environment and Genesis of South American Civilization	5
II.	Peru: History	18
III.	Peru: Religion and Customs	41
IV.	Northwest Argentina and Northern Chile	72
V.	Ecuador	95
VI.	Colombia	114
	List of Cases in Hall 9	149
	Bibliography	150
	Index	153

LIST OF ILLUSTRATIONS

PLATES

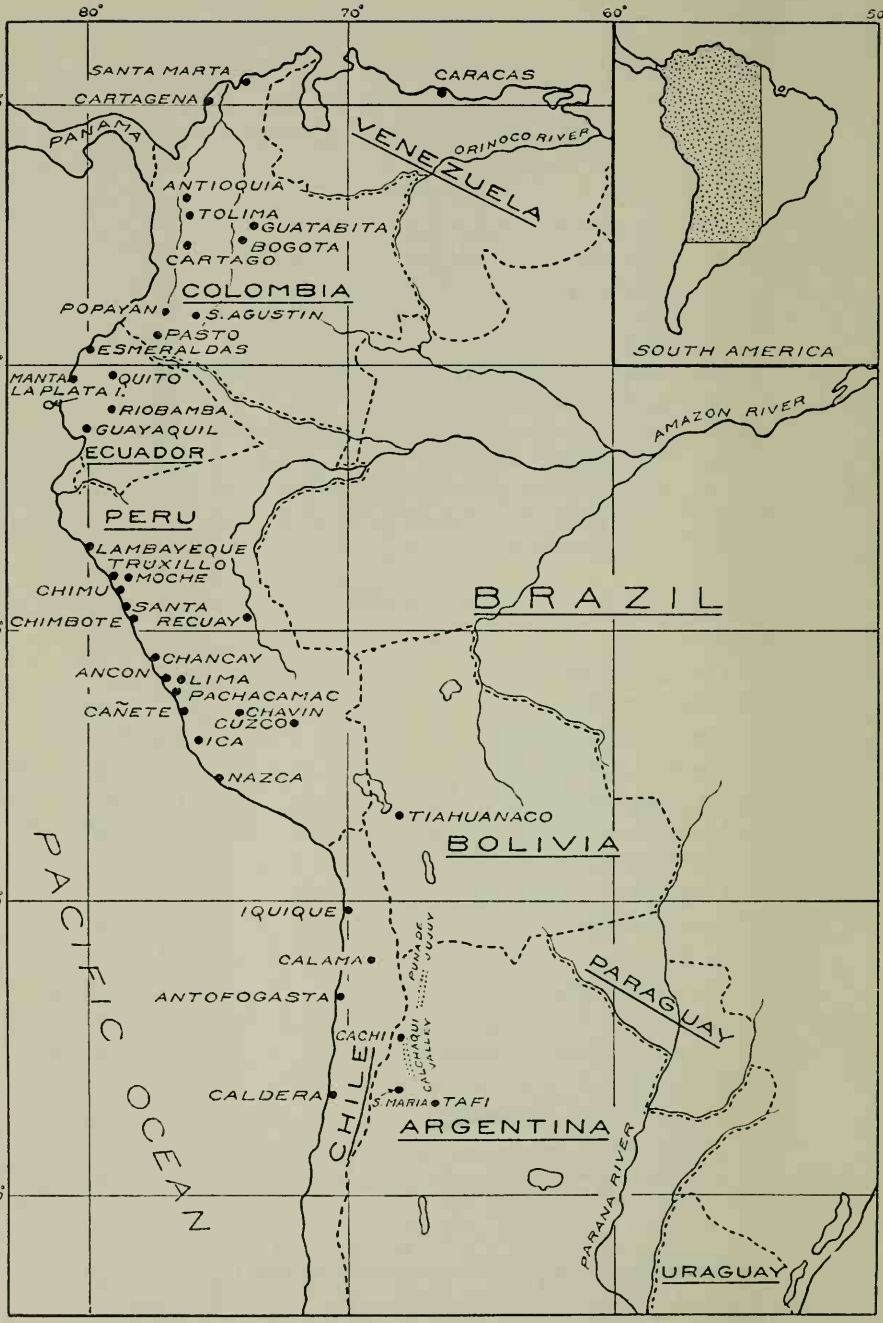
I. Nazca Pottery, South Coast of Peru.
II. Early Chimu Pottery, North Coast of Peru.
III. Late Chimu Pottery, North Coast of Peru.
IV. Inca Ruins, Southern Highlands of Peru.
V. Nazca Pottery, Peru.
VI. Diaguite Pottery, Province of Tucuman, Argentina.
VII. Pottery Vessels, Colombia.
VIII. Chibcha Pottery, Chibcha Region, Central Colombia.
IX. Pottery from Colombia.
X. Gold Ornaments, Medellin, Colombia.
XI. Stone Work, North Coast of Colombia.
XII. Textile from Peru.

TEXT FIGURES

		PAGE
1.	Inca Pottery	31
2.	Lacquered Wooden Vessel	55
3.	Peruvian Textiles	61
4.	Peruvian Metal Work	63
5.	Metal and Bone Work	65
6.	Peruvian Stone Work	67
7.	Inca Stone Work	69
8.	Peruvian Lacquer Work	70
9.	Diaguite Art, Argentina	81
10.	Decorated Gourds	85
11.	Andine Art	87
12.	Wood Work from Chile	89
13.	Carved Bone from Chile	91
14.	Gourds and Other Implements	93
15.	Burial Customs	103
16.	Pottery Vessel from Colombia	139
17.	Pottery Spindle Whorls	141
18.	Colombian Pottery	145

MAP

Archaeological Map of Western South America 4



ARCHAEOLOGICAL MAP OF WESTERN SOUTH AMERICA

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ARCHAEOLOGY OF SOUTH AMERICA

I. ENVIRONMENT AND GENESIS OF SOUTH AMERICAN CIVILIZATION

South America is a continent of marked physical contrasts. In the same latitude one can pass from arid coastal plains across the snow-clad peaks of the Andes into the tropical jungle of the low Amazon basin. Within a distance of three hundred miles one finds these overwhelming contrasts of sandy waste and impenetrable jungle teeming with life. Traveling from north to south the transition is less abrupt, but in the course of not far short of five thousand miles one passes from the steaming jungles of the north across the plateau land of Brazil and the woodlands and swamps of Paraguay over the treeless pampas of the Argentine and down into south Patagonia and Tierra del Fuego, a region of sub-antarctic flora and fauna. South America, then, presents the extremes of heat and cold, of wastelands, forests, and plain within its shores. Somewhere within these extremes every type of vegetation can be found.

The coastal plains of the Pacific and the valleys of the Andes hinterland produced one general type of civilization, the highest attained in South America. The humid jungle lands of the Amazon and Orinoco basins molded a different culture, lower than that of the Pacific coast, but with its distinctive contributions to progress. The southern Brazilian plateau and the woodlands of Paraguay and North Argentina were responsible for a distinct modification of the forest pattern, while in the

north-central plateau of Brazil, the open plains of central Argentina and Patagonia and the plains and mountains of Tierra del Fuego and southern Chile little progress in civilization was made.

The contrasts in civilization are as marked as those of physical geography. On the one hand, the Andes region nurtured one of the most advanced civilizations of the New World; on the other hand, Tierra del Fuego, a peripheral region, was the home of some of the most primitive tribes in the world. Peru witnessed a great development of arts and crafts in combination with a variety of highly organized communism blended with autocracy. In Tierra del Fuego the natives had practically no social organization, no knowledge of agriculture, weaving or metals, used no pottery, and did not even know how to polish stone.

Although the peak of South American civilization was reached in Peru, it would be wrong to consider the other cultural areas as having derived their civilization in entirety from this center of greatest development. Such features as the cultivation of manioc and the pineapple, the use of poisoned darts in blowguns, and the substitution of the hammock for mats or a bed probably originated in the forest regions of the Amazon or Orinoco basins, while even southern Chile made its contribution to cultural progress by the use of the plank-built canoe.

Such, then, in brief outline was the situation in South America at the time Columbus was setting forth on the first of his voyages. Some areas had progressed far along the path of civilization, others had lagged behind. Much of this progress was of recent date. Had South America been discovered some three thousand years earlier, a very different picture would have met the eyes of the first Europeans. The high lights would have been largely absent, and South America would have stood forth as a continent of fairly uniform culture. Perhaps agriculture

would have been a little less widely distributed, cultivated plants possibly would have been fewer in number, but such elements as metal-working, national government, and highly organized religion would not yet have appeared on the scene.

South America was probably first inhabited some fifteen or twenty thousand years ago. These first immigrants apparently passed across from Asia by way of Bering Strait and Alaska, either in boats or across the ice. Almost certainly there was no concerted migration, but the immigrants must have passed across in small unrelated groups, possibly hundreds of years elapsing in some cases between the crossing of one group and the next. In the course of centuries these immigrants and their descendants drifted southwards, gradually filtering into South America.

These first immigrants were on a very low cultural plane, probably resembling in this respect middle or late palaeolithic man in Europe. Wearing skins for warmth, they hunted game with spears propelled by spear-throwers, and lived either in caves and rock-shelters or in very primitive shelters erected in the open. For food they depended on game they could shoot or trap, fish and clams, seeds, berries, and roots. In these occupations they used chipped stone knives, spearheads and scrapers, and probably bone harpoon points. Many animals now extinct, such as the mastodon, giant sloth and certain species of buffalo, appear to have roamed the New World at this time. At least signs of human occupation have been found with such fauna under conditions which would seem definitely to preclude accidental association in every case and which would lead us to conclude that man and such animals were in all probability contemporaneous. This does not necessarily imply a great antiquity for man in the New World, but suggests rather that these animals continued to exist under favorable circumstances for long after they were previously believed

to have become extinct. On the other hand the estimate that man has existed in the New World only for about ten thousand years is probably too short. An occupation of fifteen or twenty thousand years is tentatively suggested, but such statements lack definite proof.

The most primitive skulls so far reported from South America were first found in caves at Lagoa Santa in the south of the State of Minas Geraes, Brazil. Subsequent finds of skulls of the same general type show that the race was at one time widely distributed. These skulls belonged to a people with small heads, which were long but of exceptional height. Faces, which were marked by broad noses, were wide and short, and showed marked prognathism. These skulls resemble those of the Australian aborigines, suggesting not a migration across the Pacific but a common ancestral stock. It is probable that these Lagoa Santa people were among the first inhabitants of America, but there were other immigrants, probably of later arrival, who were also narrow-headed, but with much narrower noses. A third and numerically larger race was marked by very pronounced roundness of the head. From these three main stocks, so far as is at present known, all the present American Indians are descended, although the strains are generally very mixed, and may have been so in many cases before migration to the New World. The Lagoa Santa type has died out, but many modern tribes probably have a large percentage of this blood in their veins as shown by certain peculiar physical features.

Possibly the later round-headed peoples brought with them from Asia later inventions such as basketry, the bow and arrow, polishing of stone and the domestic dog.

The American Indians form a homogeneous group, distinctive from other racial groups of the world, but allied to the Mongoloid races, with which they form the great Mongoloid division of man. Somatological evidence points to the Chinese and American Indians as being part

of this same Mongoloid group. This does not imply that the American Indian is descended from Chinese stock, but that both have a common ancestor. The most prominent physical features of the South American Indian and the Mongoloid race in general are the presence of very prominent high cheek-bones and straight black hair. In addition, the South American is generally of a copper color, rather broad-nosed and of medium stature, although the Patagonians form a remarkable exception, being one of the tallest races of the world. The South American Indian appears on the whole to have more muscular development in the legs than in the arms. Contrary to popular belief he is neither grave nor taciturn, although centuries of mistreatment have made many Indian tribes sullen in the presence of Europeans.

Although the great majority of anthropologists favor the Bering Strait as the sole route by which America was populated, in recent years there has been a tendency to inquire more closely into the possibility of some of South America's early inhabitants having reached its shores from the Pacific. Many cultural elements of apparent great antiquity found scattered through South America are paralleled by similar elements in the islands of the Pacific. There are arguments both for and against this thesis, but this is not the place to take them up in detail; for the present it would be best to return an open verdict. We can be sure, however, that the claims that South American civilizations, such as those of Peru, were wholesale importations are absolutely fallacious.

The agricultural products of South America, which, with one or two possible exceptions, were different from those of the Old World, clearly point to New World civilization having been mainly if not entirely of New World origin. Speculations deriving South American civilizations from lost continents of the Pacific, or even of the Atlantic, are based on fantastic distortions of cultural and geological evidence, and can be safely thrown

into the discard. Such theories are originated by persons with little or no scientific training, and are voraciously swallowed by those who eternally seek the sensational and bizarre.

Although civilization gradually evolved in the higher centers of South American culture, some backward peoples of remote areas climbed but few rungs up the ladder of progress. By examining one of the most primitive of the present-day peoples of South America one should get a fair picture of the level of general culture of South America at the end of the period that preceded agriculture. A little must be discounted for subsequent progress of the peripheral tribe, and possibly a little should be added on the grounds that degeneration may have taken place. The most backward tribes of South America are to be found in Tierra del Fuego. The following summary of the culture of the Yahgans, one of the Tierra del Fuego tribes now fast approaching extinction, is based on S. K. Lothrop's "The Indians of Tierra del Fuego."

The Yahgans, contrary to the belief that the languages of primitive peoples are extremely simple, possessed a very rich vocabulary, no less than 32,000 words having been recorded by students of the language. In contrast, Shakespeare used a total of 24,000 words in all his works. On the other hand the Yahgans only possessed numerals for 1, 2, 3, 5 (one hand), and 10 (two hands). Despite the cold climate men and women of all ages frequently went completely naked. Clothing, when worn, consisted of sealskin capes worn over the shoulders, pubic coverings of skin worn by the women, sealskin moccasins, and, rarely, mittens or guanaco leggings. The hair was cut across the forehead, but otherwise was seldom touched, while facial and body hair was removed with a pair of mussel-shells. Bands of guanaco-hide, painted white, were worn as wristlets and anklets, while as additional ornaments beads, made from the leg-bones of ducks or from shells, were strung on braided sinew

and worn as necklaces. Bodies were decorated with red paint obtained by burning earth, black paint made from charcoal, and white paint made from a certain clay.

Dwellings were of the wigwam type, covered with leaves, grass, bark, or kelp in summer, but with the addition of sealskins in winter. Fire, which was conserved as long as possible, was made by using flint and pyrites. Basketry of the coiled type represented the most advanced craft, while bark buckets and sealskin bags were also made. The principal tools were a scraper made by setting a mussel-shell on a stone handle, a leaf-shaped knife made of chipped stone, a whale-bone tool for removing bark from trees, and a crude hammer-stone. Canoes were made of bark, and when in use a fire was always kept burning amidships. The task of paddling fell to the women, who used paddles with sharply pointed handles. Spears were usually made with serrated whale-bone heads, but there were many types, in addition to excellent harpoons. Bows and arrows were also used, the latter having well-shaped heads of bone. Other weapons of the chase or for fighting were slings, clubs, and bird snares. Fish were caught with nets, weirs, a noose on a line, or spears, while four-pronged wooden spears were used to catch crabs and sea-urchins. To open fish for cleaning, a hole was bitten in the fish's belly.

Organized warfare was unknown, but feuds between two individuals sometimes developed into regular battles. There was no higher unit than the family. Marriage with first or second cousins was forbidden. Marriage ties were loose, and there was a tendency to exchange husbands and wives. Children, contrary to the general Indian custom, did not receive much attention, and abortion was, apparently, a common practice. Simple games existed, and very primitive masks were used in certain ceremonies. Adolescents of both sexes underwent initiation ceremonies, which included a strict fast, instruction in morals

and industry, baths in the icy ocean, a sort of tattooing, and ceremonial dancing.

Religion was extremely primitive. There was a supreme being who controlled nature by sending or withholding the food supply, dispensed justice, and caused death. Prayers were offered to this deity in times of sickness and grief, and at moments of thanksgiving. There were also innumerable spirits of the sea, rocks, trees, and others, as well as the ghosts of shamans, the medicine-men of the tribe. The dead were buried. If death, however, took place far from home, cremation was resorted to in order to prevent the bones falling into unfriendly hands. Mourners covered themselves with black paint, and danced wearing special head-bands adorned with goose feathers. These dances were repeated at intervals for several months after death. There was apparently a belief in survival beyond the grave, but the ideas held on this subject were vague. Legends existed of a flood and culture bearers.

Such in brief is the outline of Yahgan culture as it existed until a few decades ago. The early cultures of South America of about 10,000 years ago probably were not very different. Allowance must be made for environment, which is so clearly reflected in the cultures of Tierra del Fuego. It is unnecessary to state that a primitive tribe of the Amazon basin obviously used other material than whale-bone for spearheads, and did not dress in sealskin capes, but in general the patterns of the two cultures must have matched to a remarkable degree.

The discovery of agriculture, which probably took place some five to eight thousand years ago, was instrumental in greatly accelerating the progress of the majority of American Indian tribes. This may first have taken place in the highlands of Middle America with the domestication of maize. In this region is to be found a wild grass known as Teocentli (*Euchlaena mexicana*), from which a number of botanists believe maize was developed. Once estab-

lished as a domesticated plant, the spread of maize must have been rapid. It has been claimed that maize was first developed in arid areas with the aid of irrigation, but the writer knows of no authenticated example of very early irrigation in the Middle American region. Hillsides were frequently terraced, but the primary purpose of this was clearly to conserve the soil against erosion. The coastal zone of Peru, an area of great aridity in many parts, was a center of irrigation in ancient times, but no one has seriously suggested that maize was first cultivated on the coastal plains of Peru.

So many cultural traits, common to Central and South America, can be traced to a South American origin (p. 17) that the southern continent should not be neglected as the possible scene of the first cultivation of agricultural plants. Furthermore, Middle America, despite the fact that it is the home of maize, at present yields no evidence of cultures of great antiquity, for the earliest known cultures of Central America and Mexico have a sophistication which would point to many centuries of progress having preceded their development. Furthermore, influences, apparently from South America, are visible in the earliest known cultures of Central America.

It has been so generally assumed that maize, because of its economic importance and wide distribution, was the first plant cultivated by the inhabitants of the New World, that the possibility of some other plant having had that honor has been practically ignored.

It is by no means impossible that some other plant, possibly manioc, was cultivated before maize. Manioc is a native of eastern South America, which is a region where no high culture was developed. However, manioc may have been the ladder by which early man in America climbed the first few rungs from nomadic savagery to an organized communal culture. The distribution of manioc is less wide than that of maize, but this is undoubtedly

due to the fact that climatic factors barred its progress north of central Mexico or south of the Chaco region.

That eastern South America was a center of agriculture for very many centuries is proved by the seedless pineapple, a native of this region, for a lengthy period of cultivation must have elapsed to reduce this fruit to a position where it is dependent on artificial propagation.

Manioc may first have been cultivated for the poison it contains, which is still used in Brazil as a fish poison. The pulp from which the poison had been extracted may subsequently have been utilized as a food stuff, and from this stage it would have been a simple step to cultivation of the plant to insure an adequate supply of food and poison. Once manioc had been extensively spread in South and Central America, maize may have been brought under cultivation, and owing to its superior qualities replaced manioc as the staple food of large areas, and permitted a wider extension of agriculture.

Actually there is no definite proof that manioc was cultivated before maize, but it is a distinct possibility, and should not be entirely overlooked in favor of the prevalent theory that maize was the first plant cultivated in the New World, and is the *fons et origo* of the New World civilization.

The invention of agriculture gave a great impetus to progress. Prior to this event man had been forced to spend the greater part of his time, either directly or indirectly, in the search for food. The hunting of game and the collecting of shell-fish, roots, and berries consumed much of his time, and what remained was devoted to the preparation of hunting weapons and traps. Consequently he had little leisure for invention. After the development of agriculture much less time was required for assuring a food supply. Instead of a constant search for food, which often required him to travel great distances, he could assure himself a plentiful supply by a few months of hard

work. With an assured food supply specialization was possible, and the farmer had a food surplus that he was prepared to barter for the non-agricultural products of others. With specialization and added leisure invention was speeded up.

At about the same time as the introduction of agriculture, pottery was invented. This also marked an important advance in civilization. It appears probable that pottery developed through the custom of daubing baskets with clay to make them water-tight. In the southwestern part of the United States, stages from this point upwards have been traced in archaeological deposits, but this does not necessarily imply that pottery was first developed in this area, for these stages may represent a local development of pottery stimulated by the knowledge that other peoples manufactured it.

The peoples of the earliest dateable cultures of South America possessed pottery, but doubtless earlier stages will some day be found in South America, in which pottery will be absent. Of course, the absence of pottery among a certain people does not necessarily indicate that pottery was unknown in the area, for, as we have seen, the Yahgans of Tierra del Fuego made no use of pottery in the nineteenth century, whereas some two thousand years earlier pottery-making had reached a very high level in Peru.

Cotton was probably first cultivated within a few centuries of the beginnings of agriculture in the New World. Weaving undoubtedly developed from basket-making. A host of new plants must have been brought under cultivation at about the same time, including such varied products as squashes, beans, fruit trees, and tobacco, while the grouping of population in permanent villages and settlements would have been one of the first results of the adoption of farming.

There is a very marked uniformity among the high civilizations of the New World, and it is clear that they are closely connected. They share in common many

agricultural plants, basically uniform religious concepts and similar manual techniques. It has been very generally assumed that South American cultures are almost entirely of Middle American origin, although with many local developments. Recently Lothrop and others have challenged this view, which is largely based on the assumption that maize was the first plant cultivated, and therefore the foundation upon which New World civilizations were built.

It is difficult to obtain evidence of the original centers from which cultural traits were diffused, but such as exists points rather to South America as the original center of dissemination. A number of pottery shapes found in South America have been generally considered to have been diffused from Middle America. But it is possible that they originated in South America since these shapes are found there in larger quantities. These shapes include cups with flaring bases, pot stands, vessels in the form of men lying on their backs with the hollowed stomachs forming the bowls, bowls with fish details in relief on their rims, and tetrapod bowls, the feet of which are frequently shaped as women's breasts. Several of these shapes are early in Central America, suggesting that they passed from South America at a relatively early period (p. 140).

Traits, which, in all probability, passed from South America to Middle America at a later date, include such agricultural plants as manioc, the tomato, and the pineapple (the last, very late), metal-working, wax-casting, wax-painting of pottery, the hammock, a religious ball game in which the ball could only be hit with the hips, knees, or head, the blow-gun, urn burial (possibly an early diffusion), the use of a datura to produce hallucinations, and the mixing of lime with tobacco (probably borrowed from the mixing of lime with coca leaves).

Most of these traits are not widely distributed in Central America, but are very diffused in South America.

Gold-working is known to have been practiced during the earliest horizon at present known in Peru, but was unknown to the Mayas during the height of their culture. Indeed, the southern origin of metal-working in Mexico is shown by many of the shapes and techniques. Similarly the ball game appears to have been a fairly late introduction into Middle America, yet in a less elaborate form it was known early enough in South America to have been carried into the West Indies by the Arawaks. The hammock, which was also carried into the West Indies by the Arawaks, was gradually extending into Central America at the time of the arrival of the Spaniards. The pineapple, too, passed into the West Indies, presumably, at the time of the Arawak invasions, but had only obtained a precarious footing in southern Central America when the Spaniards first landed. Child sacrifice, too, may well be of South American origin.

On the other hand Middle America also passed certain cultural traits to South America. These include cacao and, in all probability, maize, tripod bowls, and the practice of counting time over long periods. Late Ecuadorian pottery and pottery figurines and day of birth naming (p. 110) suggest a backwash from Middle America.

In many cases it is impossible to indicate the original foci of diffusion of many traits, while many primitive features found in outlying parts of South America, such as Tierra del Fuego, are probably remnants of the cultures that preceded agriculture. Certain geometric designs occur almost throughout the New World, and probably are of great antiquity, but certain religious similarities (p. 128) may represent later diffusions.

In the following chapters the most important civilizations of ancient South America will be discussed, although with a brevity imposed by the necessity of compressing into a limited space the history of half a dozen centers of high culture. The greater part of the material was compiled from published sources.

II. PERU: HISTORY

Peru witnessed the highest development of civilization on the South American continent. Along the coast and in the mountainous region behind, a bewildering succession of cultures mingled and succeeded one another. Climatic conditions on the Peruvian coast have been particularly favorable to the conservation of perishable material. It is a region of little rainfall, at times approximating desert conditions. A series of rivers carries the rain and melted snow from the Andes across this dry coastal zone to the sea. The ancient Peruvian settlements of the coast are to be found in these valleys under ideal conditions of conservation. Irrigation converted these barren valleys into lands capable of carrying heavy crops of native produce, but the introduction in colonial times of sugar cane has altered conditions. Sugar cane requires a much larger quantity of water. Consequently, the supply of water for the whole valley was not sufficient, and large tracts of land have gone out of cultivation. In these outlying sections have been found large numbers of cemeteries, and their contents have permitted of a reconstruction of the history of the coastal region.

The sequence of cultures can be traced backward from Inca times over long periods at two points on the Peruvian coast. The first of these comprises the Nazca and Ica valleys on the southern-central coast; the second, the valleys of Santa, Viru, Moche, and Chicama on the northern-central coastal sector. The early civilization of the former is known as Early Nazca; that of the latter is called Early Chimu.

There are certain indications that lead one to suppose that Early Nazca is more ancient than Early Chimu. Metallurgy and pyramidal construction were both more advanced in the Chimu area than in the Nazca area to the south. This suggests that the former was of later date, but there is a slight possibility that the explanation

of this northern superiority lies in the Chimu area having been closer to the original center from which these traits were diffused. This, however, is not very probable. There is no evidence that metallurgy was diffused from the north, for the working of metals probably was an invention that took place in Peru itself. Secondly, no traces of an early culture have so far been found to the immediate north of the limited Early Chimu region.

Early Nazca culture is remarkable for the very fine pottery it produced. Well-made vessels of hard, thoroughly baked clay were painted in as many as eleven different colors. These comprise two shades each of red, yellow, and brown in addition to gray, violet, flesh, black, and white. There are also intermediate shades. Each color was generally outlined in black, and as many as nine colors sometimes occur on a single vessel, although such a number is rare. The largest number on an exhibited vessel of the Field Museum collection is six (Case 29).

The designs of the earliest period are somewhat archaic in feeling, but the restrained effect, quite apart from the wealth of color, is very pleasing. Geometric, naturalistic, and mythological designs are used. The naturalistic designs consist largely of birds, fishes, snakes, and food plants. The painters kept close to nature in portraying animal designs, but the food plants are often strongly conventionalized (Plates I and V).

The geometric motifs include a step-fret, diamonds, and zigzags. Two peculiar mythological animals are frequently represented. One is a peculiar centipede monster, the other an amazing amalgamation of a fairly naturalistic feline head, a long caterpillar-like human body with human legs trailing horizontally below, and an upturned tail, frequently terminating in a human face. Variants of this deity are widely represented in Peruvian art. Examples in the Chimu region show more realistic paintings of the jaguar elements of the deity, but with a tail depicted

as a snake (Case 19, east side). This deity may be Viracocha, a sky and fertility god, probably of Andine origin.

Representations of human heads are common on Early Nazca pottery. Sometimes they are shown dangling head downward from belts or clothing, or placed by themselves as the sole decoration of a vessel. Such designs point strongly to the practice of head-hunting. It is even possible that the custom of shrinking heads, as practiced by the Jivaros, was also known to the Nazcans, but of this there is no definite proof beyond the small heads to be seen on these vessels.

Very beautiful textiles with intricate needle-work embroideries are also found in Early Nazca graves. The designs show a striking similarity to those on pottery, allowing for the different media. Tapestry-working was apparently unknown at this early period. Textiles from the earliest Nazca horizon are, unfortunately, very scarce. Furthermore, many examples in collections have no data on the associated finds, thus making their age uncertain except on stylistic grounds.

Both llama wool and cotton were employed. As the llama does not inhabit the coastal plains, there must have been trade between the mountainous country of the Andes and the coast, but wool must have been imported and woven on the coast, as the designs are clearly Nazca in style. The quantity of wool employed would also suggest that the llama was already domesticated, since the quantity obtained from hunted game would not suffice to supply the home market and leave a surplus for export to the coast.

The cotton, also employed for weaving, was grown on the hot coastal plains. Other agricultural plants already domesticated at this period probably comprised the great majority of cultivated plants found in Peru at the time of the Spanish conquest, but only maize, Lima beans, and the pods of the semi-domesticated guarango (*Acacia punctata*) have been found in graves of the earliest period.

Small pyramids were made of oval or round hand-made adobes, but pyramidal structures were of relatively little importance compared with the later structures of the central and northern coast. The hills and bluffs of the valleys were shaped into terraces faced with adobes, presumably to prevent erosion and to extend the available area adaptable to agricultural use.

In graves of this period are found pan-pipes of well-made pottery, slings for throwing stones, spear-throwers and darts, but no bows and arrows. Indeed, the bow and arrow were never commonly used in Peru. From graves of this same period we also learn that obsidian was used, baskets of wickerwork manufactured, and parrots kept. Heads were deformed, and clothing worn. Gold was worked on a small scale, but other metals appear to have been unknown.

In other graves which may belong to this same Early Nazca period well-worked tubular beads of lapis lazuli, buttons of mother-of-pearl and other more elaborate articles have been found.

This earliest Nazca culture appears on the scene with an art already well developed, varied agriculture, the beginnings of metallurgy, excellent textiles and pottery, and a well-developed commerce, as the presence of wool, obsidian, and, possibly, lapis lazuli in this period shows. It is clearly a well-established civilization with many centuries of development behind it. Yet no earlier stages have so far been discovered from which Early Nazca could have evolved. They must have existed, but so far, despite search in the vicinity, they have not been located. Peru is a large and archaeologically unknown country. Some day traces of the earlier stages will be found, but at present all that can be said is that the culture suddenly appears full blown.

Starting with the already developed Early Nazca, Kroeber lists no less than eight styles and phases that occur in this area, the last being contemporaneous with

the Spanish conquest. Most of these phases are shown in Case 29, arranged in chronological order.

One can follow the evolution of Nazca art from the severity of the Early Nazca through the incipient early transitional period into the flamboyancy of Middle Nazca. This transition is well exemplified by the development of the monster motifs. These are not very commonly represented in Early Nazca, but in Middle Nazca a bewildering series of complex varieties develops. Some of the monsters are provided with innumerable tentacles, almost completely obscuring the original design; others carry a multiplication of human trophy heads. Degeneration is also visible. Monsters are abbreviated until only the head remains. Nevertheless Nazca civilization was clearly more complex at this period than during Early Nazca. Metals were coming into commoner use; trade was increasing and new inventions were multiplying. Although flamboyancy and, at the close, degeneration set in, there are many new art motifs developed during the Transitional and Middle periods.

There succeeds a Late Nazca period, during which art degeneration is even more marked. The monster heads would be unrecognizable if the prototypes were unknown. Nazca art is clearly played out.

At this time clear traces of influences from the Highlands are discernible. These do not necessarily connote conquest, but certainly a cultural infiltration. Pottery is made in only three colors—red, white, and black. The designs are extremely simple, and many of the old Nazca shapes are replaced by Highland shapes. This Highland infiltration is observable all along the Peruvian coast.

Subsequent to the Highland influences, others from the Ica Valley are found in the Nazca Valley. These also show certain Highland strains. With the latest of these mingle Inca objects dating from the fifteenth and sixteenth centuries, and contemporaneous with the Spanish conquest.

For want of an exact chronology Early Nazca is generally considered to be about two thousand years old. Fifteen hundred years does not seem an excessive length of time for no less than eight periods of development, although some of these periods overlap to a certain extent.

The Early Chimu culture, which apparently flourished shortly after Early Nazca, occupied certain valleys of the northern half of the central coast. In some respects it differed radically from the Early Nazca. This difference is particularly noticeable in ceramic art. Early Chimu witnessed the development of a remarkable art of portraiture in pottery. Closed jars with stirrup-shaped spouts and modeled in human and animal shapes are particularly typical of this culture. The ware is painted in red and white, or, very occasionally, in black. Some of the vessels in the shape of human heads are masterpieces of the art of plastic modeling (Plate II and Cases 19 and 20).

Of this same period are some of the remarkable vessels in the shapes of agricultural produce. In Case 21 a series of these is displayed. Vessels showing representations of maize, peanuts, potatoes, sweet potatoes, achira roots, squashes, gourds, and Chachapoya almonds date from the Early Chimu period; the rest in black ware belong to the Late Chimu period.

In some cases mythological or battle scenes are painted in red on a creamy white background. Scenes showing the catching on a hook of a peculiar fish with human attributes are particularly common. Battle scenes show the use of stone club-heads and copper axes, the hafts of which are frequently depicted as snakes (Case 19).

A series of vessels in the same case show men suffering from various diseases. Yet other vessels carry scenes in low relief. These vessels with their simple colors, relying for effect mainly on modeling, supply a strange contrast to the Early Nazca vessels, which depended for their effect very largely on their free use of brilliant colors. It is hard

to realize that these two arts, so widely divergent, could have flourished practically at the same time at a distance of little more than five hundred miles from each other. Indeed, for a considerable period they must have been contemporaneous.

In the Chimu area pyramidal construction was carried to a higher degree of perfection than in any other area of the New World outside of Middle America. Pyramids of the Early Chimu period are often of a considerable height, the so-called Pyramid of the Sun at Moche having a height of over 130 feet. Generally speaking the structures of this early period are rectangular blocks with steep sides, usually with narrow terraces on three or four sides. Often there is a ramp approach which either leads straight up to the summit or follows the sides of the pyramid so that it is necessary to coast three sides before reaching the summit. Sometimes there is a large burial terrace in front of the pyramid.

The core of a Chimu pyramid was usually made of rectangular adobe bricks, averaging about one foot in length and some eight inches in breadth, but sometimes stone was employed, especially for foundations. Adobes were laid in a mud mortar. The structure was formed by constructing a series of adjacent parallel walls of this material not bonded together in any way. The groups of parallel walls were often set at right angles to one another. This at first appears to be a weak form of construction, but its very massiveness seems to have given it strength. Kroeber suggests that each contingent of a community was allotted its task of building a specified length of wall. A somewhat similar system of pyramidal construction was followed by the Mayas, although square blocks of boulders served as units instead of the walls of Chimu constructions, but in some Chimu pyramids short walls crisscrossed, forming rectangular columns, approaching closer to the Maya method of construction.

Walls of the upper zones of pyramids were often covered with frescoes. At the west end of Hall 9 are shown reproductions of a partially destroyed fresco from the "Pyramid of the Moon" at Moche. These were copied by Kroeber, and represent an old myth that relates how the domestic animals and household utensils once rose in revolt against the human race, destroying it. The myth is of peculiar interest for it has also been recorded from the Maya area. The outlines of the figures were first incised and then filled with black paint. The colors employed are red, pink, yellow, light blue, white, black, and brown. The last of these, however, may be the natural adobe.

Fronto-occipital deformation of the skull was practiced to a certain extent by the Early Chimu, but was by no means a general custom. The dead were buried in rectangular tombs in a number of positions, including the extended. Gold and copper, as well as an alloy of these two, were cast, and silver may have been used. Tin and bronze were not yet known.

Influences from the Highlands are discernible in some of the vessels. A small proportion shows definite Chavin style, and a few show shapes reminiscent of the pottery of Recuay. Kroeber is of the opinion that Early Chimu did not form a unified state, but was formed by a number of local communities sharing in the same culture but probably often at war with one another.

Early Chimu culture must have lasted a considerable time, to judge by the large quantities of pottery of this period as well as by the advanced pyramidal structures carried to a successful conclusion, but again there is no trace of anything that can definitely be shown to be earlier than it is in this region. There are, as noted above, certain signs of Chavin influences, but we have no actual proof that the Chavin culture is earlier in date than Early Chimu.

During Middle Chimu, influences from the Highlands, somewhat similar to those found in Middle Nazca, but more complex, appear. New shapes replace those of the early period. Some, such as tripod bowls, may be derived from the Ecuadorian Highlands. The majority belong to a widespread Highland culture, of which Tiahuanaco is probably a local development. The blotting out of the old culture may mean only an irruption of culture from the Highlands, but it is more than probable that it represents a conquest of the coastal area by a Highland empire. The heterogeneous pottery introduced at this time would suggest that the rise of this empire of the Andes was a recent feature, since there had not been time to weld the components into a uniform style. The term "empire" is not used here necessarily in the sense of a great territory ruled over by an actual emperor, but rather as a group of peoples loosely federated by conquests or alliances.

The relative scarcity of Middle Chimu products and the fact that a uniform art was not developed indicate that this period was one of short duration. The variety of styles it embraced may be realized by examining the contents of Case 21.

Late Chimu, which succeeds the Middle period, shows in many respects a return to Early Chimu styles in pottery, but with a certain admixture of Highland traits, and even some that appear to have traveled up the coast from as far south as Nazca. This sudden reappearance of strong Early Chimu features suggests that Early Chimu was probably never blotted out entirely, but continued to flourish north of the original area.

The most distinguishing feature of Late Chimu is the almost exclusive use of black pottery. There is a return to the old use of modeled pottery, but a falling off in portraiture (Case 22). The double spout, so typical of Nazca, is carried over from the Middle period, but the spouts are divergent, not parallel as in Nazca. The stirrup handle of the Early period reappears, now fre-

quently adorned by a tiny modeled monkey at its base. Double jars are also very common. These whistle when water is poured out or swished from one compartment to another. This is achieved by a small intake in the half that has no spout. Kroeber summarizes Late Chimu pottery in the following sentences: "Late-north Chimu is a composite of traits whose earlier occurrence can be traced somewhere else in almost all cases . . . . It has lost the old feeling for vigor of form, but treats its originally heterogeneous materials with uniform, shallow elegance." (Plate III.)

The pyramids constructed in Late Chimu times were inferior in size to those of the Early period, but Late Chimu witnessed the construction of regular cities—a feature not met with in Early Chimu. Chanchan in the Moche Valley, which is the best-known ruins, was, apparently a civil city. It is some two kilometers long and over one kilometer broad. There are a large number of enormous courts surrounded by high walls. Some of these courts are bare; others are filled with a maze of smaller walled structures. It has been suggested that these served as residential buildings. A peculiar feature is the presence of certain rectangular depressions. These are very numerous in the city, varying considerably in size. An average measurement shows a length of 450 feet, a width of 195 feet and a depth of 60 feet. It has been suggested that these served as reservoirs, but of this there is no definite evidence.

Squier, who visited Chanchan some sixty years ago, considered that the walled courts might have served as city wards. In one court he counted thirty-nine separate buildings, altogether containing 111 rooms, and twenty-two small structures facing the central square, in the center of which is a single large structure. It is not impossible that these walled courts housed the members of a single clan or sib, and that the large central structure

served as a clan meeting house or men's house. This, of course, is pure speculation.

Structures were still made largely of adobe with occasional use of stone. Well-executed scenes in stucco-relief are occasionally found on the walls, and were, doubtless, once in common use. Geometric and life scenes are shown.

Textiles of this period are very well executed. Many colors are employed, and the designs resemble to a certain extent those on the contemporaneous pottery. Metals were used in abundance. Bronze had by this time come into general use, in addition to gold and silver alloys.

The area covered by the Late Chimu was far greater than the extent of Early Chimu. During the Late period the Chimu confederacy came under Inca domination. The Incas, under the ruler Pachacuti, began to conquer the coastal regions, and on their attacking Cajamarca the Chimu came into conflict with them. Notwithstanding the support of the Chimu, Cajamarca was subdued, upon which the Incas turned on the Chimus, apparently forcing them into subjection by the device of cutting off their water supply by seizing the higher ground at the foot of the Andes. The Chimu confederacy was forced to surrender, and thenceforward formed part of the Inca empire. It should be noted in passing that the term Inca should rightfully be reserved for the ruling caste of the Cuzco civilization, but it has crept into use to describe the whole people. In this guide popular usage is followed in describing the people and the civilization as Incas and Inca respectively.

The conquest of the Chimu area by the Incas during the Late Chimu period is borne out by archaeological finds, for Inca pottery is found in association with the Late period in various parts of the Chimu region, as well as in practically all the coastal cultures of the Late period.

Lack of space does not permit of a description of the numerous local cultures that occupied the valleys between

the Chimu area of the north and the Nazca of the south, but a word should be said concerning the Early Ancon culture.

At Ancon and Supe, Max Uhle found remains of a very primitive culture, distinct from anything else so far reported from Peru. In shell heaps were found many sherds of heavy pottery of simple shapes. Decoration is usually by incision, but in one single case a sherd carries two colors. Primitive pottery figurines occur, and the presence of spindle whorls suggests the use of textiles. No metals have so far been found, but it must be remembered that the collections are not large. Probably metal was not known, for in the much more advanced Early Nazca metal is very scarce (p. 21).

Whereas Early Ancon shows a preponderance of incised ware, this feature is rare in the later periods at Ancon, polychrome ware largely replacing it. This suggests that there was not a continuous development from one horizon to another. Field Museum possesses no examples of this Early Ancon culture, but examples of the later civilizations from this and the adjacent valley of Chancay may be seen in Case 23.

Civilization appears to have developed quite as early in the highlands as in the coastal valleys, but little work has so far been carried out in the former area, and the succession of cultures is largely problematical. There seem, however, to have been two fairly definite strains. The first of these is known through work at Chavin and other centers in the northern Andes. The other, with an apparently local development at Tiahuanaco, occupies the southern and central Andes region and is known chiefly through intrusions on the coast.

At Chavin have been found a number of stone monuments elaborately carved with intricate designs which in some cases somewhat resemble Nazca demon designs of the Middle period. A number of archaeologists have

seen Maya similarities in some of the sculptures, but the writer has not been able to convince himself of their presence, feeling that all Chavin stone work is closer to Middle Nazca than to Maya.

Chavin pottery is found in Early Chimu deposits. This association is not incompatible with the presence of Chavin stylistic features in Middle Nazca, since the former area is much closer geographically to Chavin, and probably of rather later date than Early Nazca.

Little is known of the origin of the Tiahuanacoid culture. It appears on the coast in the middle of history, and is of undoubted Highland origin. Kroeber has suggested that it was a widespread culture, and that Tiahuanaco might be considered as a local manifestation, artistically superior to contemporary developments in other parts.

Tradition speaks of a pre-Inca empire of the south, which would correspond well with Tiahuanacoid. This may have been the Chanca confederacy, the territory of which was supposed to have been around Andahuaylas, and which was, therefore, geographically in a position to influence the coast. It is precisely in the coastal areas closest to this territory that Highland influences are strongest during the Middle period, the more distant Chimu throwing off Highland influences with greater success.

There is no clear mention in history of any confederacy centering around Chavin. If such existed, it doubtless antedated that of the Tiahuanacoid horizon.

The third influx of Highland influence into the coastal region, and the one most clearly defined both archaeologically and historically, is that of the Inca. Inca objects are sometimes found in association with glass beads and other objects of European origin, clearly showing that Inca culture was in full swing at the time of Pizarro's arrival.

FIG. 1. Inca pottery. Vessels which in designs and shapes are typically Inca. Cuzco and neighboring regions of the Highlands of Peru (Case 30).

Inca civilization in terms of ceramics appears on the scene already fully developed. Pottery shapes and designs are for the most part totally different from those of any other known Peruvian cultures. An examination of the Inca pottery in Cases 30 and 31 shows new types such as the aryballus, the flat-handled plate, and various types of handles, not represented in any of the earlier cultures (Fig. 1). A few shapes are reminiscent of the Tiahuanacoid period, in particular the straight-sided goblet. The red-brown backgrounds with designs, mainly geometric, applied in subdued colors show little affinity with any of the other known cultures. More intensive work in the Highlands will no doubt eventually solve the problem of the origin of the Inca civilization. That the civilization is of local origin is shown by the metal tools, the majority of which are of types already known from the earlier coastal areas.

Legend, however, gives us a full account of the origin of the Incas which makes up in romance what it lacks in fact. According to this story, the early settlers migrated from a locality called the Tavern of the Dawn under the leadership of four brothers, who claimed to be children of the sun. The rank and file were divided into ten sections, probably clans, the members of which were probably related by geographical or family ties. Without haste the wanderers advanced in the direction of Cuzco, stopping en route to sow and harvest their crops.

Manco, the chief of the four brothers, carried a golden staff. An oracle had announced that they were to settle at the spot where the staff should sink entirely into the ground. This, of course, meant a fertile valley, for only in such a place would sufficient soil be found. Manco also carried a falcon-like bird in a basket. This was the familiar spirit of the leader, and was considered sacred by his followers. It may have been a totemic emblem.

One of the brothers, Cachi, was much feared by the remainder. He appears to have been an earthquake god,

for we are told that with each shot he hurled with his sling he pulled down a mountain and filled up a ravine. The other brothers decided to kill him. They told him to go back to the Tavern of the Dawn to fetch certain gold ornaments, including a gold llama, which they had left in a cave.

Cachi returned to the Tavern of the Dawn. When he entered the cave, his companion rolled a great stone across the entrance. Cachi exerted all his strength, but although he made the mountain tremble he could not escape, and eventually died. This part of the legend would appear to be of great antiquity, for it duplicates a Maya legend recounted in the Popol Vuh. In that case the victim, Zipacna, who is also an earthquake god, is lured into a cave, the bait this time being not gold vessels but an edible crab, of a kind of which Zipacna was very fond. As soon as the giant was in the cave, his enemies toppled over a part of the mountain, which they had previously undermined. Zipacna, thus imprisoned in the cave, was converted into stone.

Manco resolved to get rid of the other two brothers. One of them he induced to touch a sacred idol on the top of a mountain. As soon as the second brother touched the idol, he was converted into stone. The third brother had wings and was able to fly. Manco told him to fly to a certain pile of stones, which were considered sacred. As soon as the third brother alighted on the stones, he was immediately converted into another stone.

A little later Manco hurled his golden staff as far as he could. It sank deep in the soil, and the people knew that this was to be their home. The place was Cuzco, which was to become the capital of the Inca Empire. Within a short space of time the Incas had subdued the other inhabitants of the Cuzco Valley, dividing the land among the ten clans. Although no date is given for the Inca migration to Cuzco, the order of Inca rulers is well known. These were twelve in number. If an average of

twenty-five years is allowed for each reign, this would carry the arrival of Manco at Cuzco back to the first half of the fourteenth century (the last twelve rulers of England have reigned for 276 years). Nevertheless the story of Manco is so full of legend that it is uncertain if he was actually the first Inca or whether he was some legendary culture hero grafted on the Inca succession. Apart from the miracles associated with the march to Cuzco, he was said to have lived to the ripe age of 144.

The second Inca was Sinchi Rocca, a son of Manco by his sister. During his rule no wars were fought. He was succeeded by a younger son, Lloqui Yupanqui, who also maintained peace during his reign.

The fourth Inca was Mayta Ccapac, whose reign was also comparatively peaceful. In a series of local wars he secured final control of the Cuzco Valley, which up to this time had been occupied by two other small tribal groups. There is little doubt that up to the end of this reign the Inca people were very small fry.

The next Inca was Ccapac Yupanqui, a younger son of Mayta Ccapac. History relates that his elder brother was passed over in the succession because he had an ugly face! Ccapac Yupanqui was the first Inca to extend the Inca dominions beyond the Cuzco Valley, but even he did not extend Inca rule more than fifteen or twenty miles from Cuzco. His successor, Rocca II, pushed the Inca frontiers a little farther afield and planned aqueducts to bring water to the Cuzco Valley, but we are told that he gave himself up to pleasures and banquets, preferring to live in idleness. He is credited with the division of the people of Cuzco into two geographical groups known as Upper Cuzcans and Lower Cuzcans. However, it seems more probable that this division was a survival from a time when some form of dual organization existed. Yahuar-Huaccac, the seventh Inca, had been kidnapped in his childhood. This happened when the boy was visiting relations of his mother, who belonged to a small neighbor-

ing tribe. One day while the men were working in their fields, members of the Ayamarca tribe stole the boy. His captors, the story relates, intended to put him to death, but tears of blood welled up into his eyes, and he was spared. His name means "tears of blood." Some time later he was rescued and returned to his father.

During his reign the Inca power was greatly extended. In a series of campaigns many of the surrounding tribes were reduced, and their territories incorporated into the Inca realm. Others were driven into submission by the terrible examples made of some tribes that resisted. Among the tribes thus subjected were the Ayamarcas, who had captured the Inca when a boy. The policy of conquest and annexation was pursued under the succeeding Inca, Viracocha. During this period the whole region between the Apurimac and Vilcamayu rivers was brought under Inca domination. Previously the conquests had been more in the nature of raids, the subjected peoples soon regaining their liberty, but under the Inca Viracocha the subjection was complete, and garrisons were left among the conquered tribes.

The successes of the Incas brought on hostilities with the powerful Chanca confederacy. It has been suggested (p. 30) that the Chancas may have been the people responsible for the introduction of Highland influences into the coastal regions during the Middle period. If this were indeed the case, Chanca influence had doubtlessly declined to a very marked extent. This decline is probably portrayed in the archaeological finds, for Highland influences soon disappear in the Chimu area, and do not seem to have lasted long in the Nazca area. One must also bear in mind that the artistic impulses introduced from the Highlands may well have lasted long after the power of their introducers had been largely destroyed, and their coastal domination overthrown. At the time of the Inca-Chanca hostilities, the Chanca confederacy

had probably sunk to about the level to which the Inca kingdom had risen.

The early fighting was entirely in favor of the Chancas. Viracocha, who by this time was an old man, fled from Cuzco, taking refuge in the mountains. One of his sons, Cusi, rallied the Inca forces that remained, and at the very gates of Cuzco stood his ground. The Chancas actually penetrated into the suburbs of the city, but the Incas put up a strong resistance. Meanwhile the Inca vassals were watching the fight from the hillside, apparently sitting on the fence to see which side looked like winning. When they saw that the Incas were more than holding their own, they descended from the hills and attacked the enemy. These Peruvian Prussians were the Chancas' Waterloo. Soon they were in headlong flight with the Incas and their vassals in pursuit. The defeat of the Chancas assured the future of the Inca empire. The Chanca vassal states rapidly transferred their allegiance to the Incas, either voluntarily, or by conquest.

Cusi, the son of the Inca and the hero of the Chanca campaign, was ever afterwards known as Pachacuti, the title of reformer having been given him for this triumph. Soon after this success he became ruling Inca. Urco, an illegitimate son of Viracocha and the favorite son of the old ruler, wished to seize the throne, but he was defeated by Cusi Pachacuti and killed. Apparently Viracocha was still alive at this time, but had so lost the respect of his people by his cowardice during the Chanca invasion, that his supersession was not challenged.

During Cusi Pachacuti's long reign of fifty years Inca domination was extended over the whole Chanca confederacy and along the coast from Nazca to the Chimu region in the north. The extension in the Highlands was more a matter of welding together a series of small tribes and confederacies, which were closely allied to the Incas in customs, language, and general religious concepts. In the coastal regions Inca expansion meant the absorption

into the empire of peoples with different customs, languages, and religion. The people living in the hot coastal plains, for instance, did not pay particular attention to the sun, which was the center of Inca religion. However, the Incas had the wisdom to tolerate native cults, permitting the worship of local gods so long as the sun was given a position of pre-eminence in the pantheon.

Cusi Pachacuti even organized an expedition that penetrated as far as Tucuman in northwest Argentina, but it is doubtful if this was a permanent conquest at this time. At least the Titicaca region was added to the empire.

Aside from territorial expansion Cusi Pachacuti initiated many improvements of a more pacific nature. He increased the amount of land under cultivation by terracing the hills that flank the valley of Cuzco. These terraces averaged about two hundred yards in length and about twenty-five yards in width. Under his supervision the great temple of the sun was rebuilt and enriched with gold ornaments and furnishings. The bodies of the eight Incas who had preceded him were decked with gold ornaments, and special festivals decreed in honor of each one.

In the city itself many new edifices were erected and streets laid out. The calendar was also reformed. The year was divided into twelve or thirteen lunar months, which were brought into line with the solar year by observations to determine when the sun was overhead in late spring and early autumn. This was achieved by setting up a series of posts in a circle. A throne was placed on top of the center post, and it was believed that the sun descended to sit on this throne when no shadow was cast. This occurred at Cuzco about February 5 and November 7 of each year, the former being the autumn, the latter the spring.

Cusi Pachacuti is of particular interest for archaeologists, since he was America's first archaeologist, or at

least the earliest known American to take an interest in antiquities. We are told that he made a trip to the Tavern of the Dawn, from which Manco was said to have issued forth on starting his march to Cuzco. There he made a thorough inspection, for, as Sarmiento says, "he was curious about the things of antiquity." He also called a general assembly of the oldest and wisest men of his dominions, bidding them examine with all possible care the histories and antiquities of the land. The findings of this commission were subsequently preserved for posterity by being painted in their proper sequence.

The system of colonizing conquered territories with families from the vicinity of Cuzco was instituted during this reign. At the same time great transfers of the conquered populations were inaugurated. Tribes from the mountainous regions were sent into the plains, and those from the plains into the mountains. Small groups were also separated from each conquered tribe and removed to remote areas of the empire. In this way concerted rebellions became extremely difficult. Communications between different parts of the empire were also improved by means of well-built roads.

Before his death, Cusi Pachacuti turned over his authority to one of his sons, Tupac Yupanqui. An elder brother, also called Tupac, had previously been chosen to inherit, but his father did not consider him to be possessed of sufficient statesmanship to rule the empire, although he was recognized as a skillful and brave general. Tupac Yupanqui was accordingly nominated heir, his elder brother loyally deferring to him.

Tupac Yupanqui was also responsible for many of the triumphs of his father's reign, such as the subjugation of the Chimus.

His greatest triumph was the addition of much of Ecuador to the empire. In later times, Quito was to become a second capital of the empire, holding a position

similar to that of Constantinople in the Roman empire. The coastal region of Ecuador west of Quito was also conquered. This added the great emerald-producing area to the empire. It is also related that an expedition under Tupac Yupanqui sailed across the ocean to the Galapagos Islands. This is hardly credible. The islands are four hundred miles from the coast, and the Incas were never good sailors, navigating solely with clumsy balsas (p. 54). Furthermore, the islands have never been inhabited, and, had the Ecuadorians had knowledge of their existence, there would have been little object in making such a perilous trip. It is more probable that a sea voyage was made hugging the coast, or the objective may have been La Plata Island, where Inca remains have been found (p. 112).

After his father's death, Tupac Yupanqui continued his campaigns. In one he added the north of Chile to the empire, but was unable to penetrate into the territory of the Araucanians beyond the River Maule. An attempt to conquer the Amazon Valley met with failure. The dank tropical forest region of the lowlands was something outside the ken of the Highland folk, and the heat and diseases of this region were fatal to the mountaineers. Parts of the eastern slopes of the Andes, however, were brought under Inca control, and became a source for tropical products, such as the pineapple, not obtainable in other parts of the empire.

Tupac Yupanqui's successor was the last great Inca. He was named Huayna Ccapac because of his youthful appearance at the time of his succession. After a regal tour of the whole Inca realm from Chile to Quito, he conducted a successful campaign north of Quito, putting down a local rising. Probably the empire was never entirely at peace. As soon as one area was pacified, fighting started in another part. Thus while the campaign was being waged in northern Ecuador, the Chiriguanos, a Guarani tribe inhabiting the Bolivian and Argentine Chaco, made an incursion into the Inca empire at that

point. Forces were sent from the Ecuadorian front. These, marching through the enormous intervening district, defeated the Chiriguano invaders, sending prisoners to the Inca to give him an idea of the appearance and manners of these strange people. However, they were unable to subdue the country owing to the difficult geographical conditions. Huayna Ccapac died in the year 1525 in Quito.

He had nominated as his successor one of his sons called Huascar. Another son, Atahualpa, was with him in Quito at the time of his death. Huascar was proclaimed Inca at Cuzco, and Atahualpa sent an embassy to offer his submission and homage to the new ruler. Rightly or wrongly Huascar suspected that Atahualpa had no intention of accepting his half-brother as the ruler. He accused the members of the embassy of being spies and put most of them to death. In the campaign that followed Atahualpa was victorious, army after army of Huascar's forces being defeated. Eventually in a battle near Cuzco Huascar was ambushed and taken prisoner. With his downfall all resistance ceased, and Atahualpa was proclaimed Inca.

Meanwhile Pizarro had landed on the coast of Peru, and Atahualpa, who was residing at Cajamarca, was himself taken prisoner by the Spaniards. Pizarro offered to mediate between the two brothers. This offer caused Huascar to lose his life, for Atahualpa promptly sent orders that his brother and all his relations should be slain.

Pizarro, on hearing the news of Huascar's death, put Atahualpa to death, and the payments of the ransom of gold, which the Peruvians were making for his release, promptly ceased. The Inca empire, with its two leaders slain, collapsed like a house of cards.

III. PERU: RELIGION AND CUSTOMS

The ancient Peruvians believed in a creator god, who was also a supreme deity in the eyes of the better educated classes, if not in the opinion of the whole population. This god was known as Viracocha. According to a widespread legend he created the world and peopled it, but the world was at this time still without light. The people he had created were disobedient, and he wiped them out. According to one version they were turned into stone, but another version says they were drowned in a flood.

Later, with the aid of two or three assistants, he recreated men at Lake Titicaca, subsequently creating the sun, moon, and stars. These men he placed in different parts of the country, and when his work was done he disappeared into the sea accompanied by his assistants.

He is also said to have filled the sea with fish and to have given each animal its attributes, blessing the eagle with great strength and endurance, cursing the skunk with the necessity of emitting its noxious fluid. At this time he wandered the earth in the guise of a poverty-stricken man. Many of the features of this creation are paralleled by the creation story in the Maya Popol Vuh, to which reference has already been made (p. 33), and there is reason to believe that the two accounts, geographically so far apart, have the same origin.

This creator's full title is Con Tici Viracocha, but he had many other titles. Tello is of the belief that the creator god is represented in Peruvian art by the jaguar or puma, which also represents the Pleiades. He thinks that the ancient Peruvians also believed that this creator god had the power of transforming himself into other animals, and, arising in lakes or mountains, caused thunder and lightning, rains, or hail.

It is probable that Pachacamac, supreme god of the Chimu and central coastal region, was merely a local variant of Viracocha. Legend relates that he introduced

agriculture. According to this story Pachacamac was the son of the sun. The sun also had a child by a human woman. Pachacamac was jealous because this woman accorded more worship to her son than to him, whereas he was of greater importance and more powerful. In his rage he slew the infant. He sowed the dead child's teeth, and maize sprang up. The child's bones produced manioc and other roots, while from the flesh Pachacamac produced a crop of fruits and vegetables such as the Pacay and the Peruvian cucumber (*pepino*).

The statement that Pachacamac was a son of the sun is probably a result of Inca influence. This god, whose name means "soul of the universe," is identified by Markham as the fish god, but it is probable that this was only one of his manifestations. Apparently, the name is Quechua, a language not originally spoken on the central and north coast, but it is possible that the name was translated into Quechua when this language, in later times, became the official language of the Inca empire.

In addition to the creator god, who was at the same time a fertility god, worshipped under different names in different parts of ancient Peru, ancestor worship, probably of totemic derivation, was a very important element in Peruvian religion. Arriaga, whose publication on the extirpation of idolatry appeared a little less than a century after the arrival of the Spaniards, writes: "They are persuaded that each ayllu and group of the Indians has its founder and Pacarina, which they call their own, worship and offer sacrifices. They call it the Pacarina Camac, which means creator, and each one says that it has its creator, some claiming such and such a hill, others such and such a spring. Others relate many fables and stories about their Pacarinas."

The Pacarina was apparently the natural object or animal from which the ayllu or clan claimed descent. The members of each ayllu claimed to be related to each other by this common descent, and the clans were to a

large extent geographical. This, however, may have been a later development. The sun, apparently, was the Pacarina of the Inca ayllu. For this reason it was accorded great honor by all the subjects of the Incas, and on the extension of the empire to its final limits, sun worship became the official religion, although other worship was tolerated.

The great sun temple of Cuzco was called Coricancha or "The Place of Gold" from the enormous quantities of this material used in its ornamentation. There was a principal building to which were attached a number of smaller temples. The structure, which was built of huge stones fitted together with such care that no mortar was required, faced the east. On the west wall was a great sun disk of gold, so placed that the rays of the rising sun, shining through the east entrance, lit it up at the time of the equinoxes. The ceilings and walls were encrusted with gold decorations while a broad band of gold, let into the exterior walls, passed all around the temple. The adjacent temples were dedicated to the moon, the stars, thunder and lightning, and the rainbow.

In connection with this official cult of sun worship there was a well-organized priesthood. At the head of the hierarchy was a high priest known as "the head which counsels." He was frequently a brother of the ruling Inca. He was vowed to a life of abstinence, vegetarianism, abstention from intoxicants, and almost perpetual contemplation. Under him were ten or twelve other high priests, corresponding in authority to the bishops of the Christian church. Each one had his diocese, and was in charge of all the junior priests within that area.

A peculiar institution was that of the virgins of the sun, of whom there were said to have been no less than three thousand in Cuzco alone. There were also large numbers attached to the temples of the provinces. Most girls of noble birth entered the order, which was really an educational institution. During a residence of three

years in seclusion they were taught by matrons to sew and weave and at the same time received a general education. In addition to attending to the sweeping of the temple of the sun, they were directly responsible for tending the sacred fire, which was always kept alight. Should this happen to go out, terrible calamities might be expected.

At the end of three years, when the girls had reached a marriageable age, most of them left to wed members of the nobility, some being taken into the ruling Inca's household. A few chose to remain permanently in the school, rising eventually to be instructors. Those who chose to continue as virgins of the sun were dressed in a special white robe and wore a gold band in their hair. They wove and embroidered the fine textiles which were used in the temple services.

In addition to the worship of the creator god and the sun, each person worshipped his totemic ancestor. These ancestors were frequently large stones or hilltops, and, although the special object of worship of their descendants, were also accorded reverence by members of other clans.

Besides the regular priests, there were orders of diviners, who practiced their craft by counting heaps of maize, examining the hairy legs of the tarantula or some related spider, watching the flights of birds, or scrutinizing the intestines of llamas and other animals offered in sacrifice.

Sacrifices consisted of llamas and related species, birds and plumage, dogs, gold and silver, textiles, coca, shells, maize, and other agricultural produce. Human sacrifice was very rare, if not quite unknown. Early Spanish chroniclers contradict each other on this point. Part of the confusion is probably due to the fact that the Quechua words for children and llama kids are the same, hence it was believed that when speaking of the sacrifice of llama kids, children were meant. However, as we shall see, the

sacrifice of children was practiced in one area which was incorporated into the Inca empire, and probably at a date subsequent to its incorporation.

In addition to this regular worship associated with sacrifice, the Peruvians believed thoroughly in animism; that is, that every object, whether animate or inanimate, had an intelligent indwelling spirit. Accordingly, prayers were addressed to anything in nature. Offerings, for instance, were made to the corner posts of a house to protect the inmates, but apparently there was a conflicting belief, held largely by the more educated class, that there was a supreme deity, who was ultimately responsible for all the actions of nature.

The Peruvians believed in an existence after death, but information on the next world is somewhat vague. Garcilasso de la Vega states that the wicked went to a place of punishment, whereas those who had led good lives on earth went to a next world, where only happiness was in store for them. This division savors very much of Christianity. It is more probable that there was a heaven for the nobility and an underworld, but not necessarily a place of punishment, to which the souls of commoners went.

In some parts of Peru dogs were believed to conduct the souls to the next world. Dogs were bred for this purpose and sacrificed on the death of a person. Mummified dogs are occasionally found in tombs. The Aztecs had a similar belief, also sacrificing dogs to lead the deceased to the next world.

Worldly possessions were buried with the dead, and it is owing to this practice that we have so much information on Peruvian art.

Practically all the Peruvian collections in Field Museum, with the possible exception of the Inca material, have been removed from graves. In Case 26 may be seen the contents of a typical grave of the Late period at Ancon.

The mummy, wrapped in beautiful textiles and provided with a false head, sits surrounded by pottery vessels and gourds containing originally maize and beans. Two smaller mummy bundles contain the remains of children, possibly children of the mummy herself. The female sex of the mummy is indicated by the presence of two work-baskets containing implements for weaving. The spindles in one basket are provided with beautifully made whorls to give momentum to the spindle. Several of the bags, slung around the mummy so that they hang from the shoulder, contain leaves of the coca plant, from which the modern drug cocaine is made. Coca leaves were chewed in ancient as well as modern times all over the Andine region and as far north as Colombia as an antidote to fatigue. Frequently they were mixed with lime.

Hair combs and a few simple ornaments of silver were also found in this burial and are shown with the other contents of the grave.

The mummy bundles sometimes contain more than one body, but when this is the case the bundle is still provided with only one false head. The bodies of the dead were usually wrapped in leaves, and sometimes ears of maize, objects of metal or other personal objects were inserted in the bundle before it was tied up. The bodies themselves were usually arranged with the legs bent so that the knees were almost touching the chin, but sometimes, and especially in the case of children, the bodies were laid full length. However, there is great variation in the methods used, depending on locality and period.

X-ray photographs of Peruvian mummies are shown in the hall. These were made by Miss Anna R. Bolan, formerly of the Division of Roentgenology, Field Museum. A Memoir based on the examination of X-ray photographs of Peruvian and Egyptian mummies has been published by Field Museum.

Whereas on the coast the mummies were usually placed in rectangular pits dug in the ground and roofed with tree trunks and straw mats, in the Highlands they were usually deposited in caves.

Artificial mummification was sometimes practiced in ancient Peru, the viscera being removed from the body, and the corpses artificially desiccated. There are some grounds for thinking that resin was also occasionally used as a preservative, but in the case of the great majority of mummies, the preservation is due to the natural aridity of the coastal region and the salts impregnating the soil in which the tombs were made. Actually most mummy bundles contain mere skeletons, the flesh having completely rotted away. Two well-preserved bodies stripped of their enveloping cloths are shown in Case 27.

North of the Titicaca basin, in the region inhabited by the Collas, the dead were buried in large towers of very well-made masonry. Most of these towers are round, but a few are square or in the shape of an inverted truncated cone. A small entrance at the base allowed a man to squeeze through, while inside there were one or more chambers, in which the dead were deposited.

Sons of the nobility were educated in special seminaries, corresponding to the educational institution of the virgins of the sun. Here they were taught history, morals, religion, and their civic duties as future leaders of the people. They were obliged to study the laws of the country and to learn how to read the quipu cords. The instruction was in the hands of the wise men called Amautas. The children of the lower classes received no education apart from instruction in husbandry and household duties, which knowledge they acquired from their parents and their paternal uncles. This was a studied policy of the Incas, for they were fond of saying that higher education was not meant for the people, as the duty of governing was not for the lower classes, and education only made the latter arrogant and lazy.

Young men married at the age of twenty-four, while a girl was considered marriageable at eighteen. Once a year all the marriageable youths and maidens were assembled and summarily married. Wives were chosen from the same clan, but the consent of the parents was required. If a young man had not found a suitable bride, one was arbitrarily chosen for him by the presiding official. The marriage ceremony was of the simplest, for joining the hands of bride and groom was all that was necessary. Each community was required to prepare huts for the newly wedded couples, and allot them their quota of agricultural land. In the case of members of the nobility, that is to say, of Inca blood, the Inca himself presided over the ceremony. Men of Inca blood were allowed more than one wife, but the commoners were kept to a rigid monogamy.

As all the weddings took place on the same day throughout the Inca realm and were followed by festivities among the relations and friends of the brides and grooms, there was, to quote Prescott, one universal bridal jubilee throughout the empire. This peculiar marriage custom well illustrates the paternalism of the feudal-communistic state evolved in Peru.

Young men of the nobility went through an initiation ceremony at the conclusion of their instruction. This commenced with a six day fast, after which a foot race was run, sham battles were fought between one-half of the candidates and the other, and tests of their skill in hurling stones from a sling or in throwing spears were made. Subsequently they were beaten with sticks and forced to stand unflinching while an instructor whirled a club around their bodies, so that it almost touched their faces. A single cry while he was being beaten or the slightest sign of flinching from the club branded the candidate as a coward.

At the end of a month, those who had successfully passed the tests paid homage to the ruling Inca, who

pierced their ears in the presence of the nobility and higher priests. In the holes made in the lobes of the ears ear-plugs were inserted. The wearing of ear-plugs was the privilege of the Inca nobility, and from the large size of the plugs members of the Inca caste came to be called *orejones* or "big ears" by the Spaniards. All the members of this royal caste were exempt from tribute; in fact, they were supported out of general taxes in view of their royal blood and their administrative functions. With the exception of certain posts in the provinces left in the hands of the conquered peoples, all important posts were filled by members of the Inca caste. No one of humble birth was permitted to occupy any administrative position of importance.

The vast semi-communistic organization of the country was based on the ayllu or endogamous clan. Each clan owned its own land. The arable land was assigned each year to the heads of the families comprising the clan, while the pasture lands and wooded areas were used by all its members. In late Inca times the clan had become little more than a geographical group, known as Pachaca. To each clan were assigned one hundred families. Ten pachacas formed another division called huaranca, which was administered by a local chief. Four districts, each comprising a varying number of huarancas, formed the district administered by an Incan overseer. Finally, the whole Inca empire was divided into four quarters, each of which was ruled by an Incan viceroy, usually a brother or close relation of the ruling Inca.

In addition to the land allotted to each family, sections were set aside for the maintenance of the priesthood and the upkeep of the temples and also for the maintenance of the state organization. Of this last a part went to maintain local officials, widows, and orphans, a part went into a general reserve against famine, and a part was sent to help support the army and the Inca caste at Cuzco. The system was that of the primitive community, resembling

closely the system employed among the Aztecs and kindred peoples of Mexico.

The whole community worked together in the cultivation of the lands. First, the sections devoted to religious upkeep were worked, next, the lands assigned to the individual families, and, finally, the sections for the maintenance of the central government. The land was prepared with the aid of pointed wooden digging sticks supplied with a cross bar on which the weight of the foot rested. The men were responsible for this work, while the women were employed in pulverizing the clods. Apparently small groups aided one another in the preparation of the private lands.

The flocks of llamas and related wool-bearing animals were state property. They were assigned to different communities in the colder regions. After shearing, all the wool was deposited in communal stores. Each family was supplied with its requirements, and the rest of the wool assigned to the state, some of it being reserved for religious uses or for the usage of the Inca caste and other senior officials, some of it being sent to other parts of the empire where llamas could not be raised. This last item was not a severe drain on the supplies, since in the districts too warm to permit of the raising of flocks of llamas, cotton was grown and used for everyday clothing.

Female llamas were reserved entirely for breeding, but a certain proportion of the males was used for sacrificial purposes both in Cuzco and the provinces.

Trade by barter between different parts of the empire did not exist in Inca times, but products of different regions were distributed from one end of the empire to another, the share of all produce set aside for the state being largely available for this purpose. In addition to the contribution of a part of all produce for state purposes, there was a system of conscription. All births and deaths were registered by the clan chiefs and transmitted through higher authorities all the way up the line to the federal

government in Cuzco. Thereby the whole male population was divided into ten age groups, varying from infants in arms to the very aged. These age groups were based on the physical capacities of the members of each group for certain labor. Thus, men over sixty—a considerable age among a semi-primitive people—were called "Old men sleeping."

Labor, such as road- or aqueduct-making, was obtained by requiring each district to supply its quota of men for a certain period, at the end of which a fresh quota arrived to take the place of the first. The number of men required from any one district was adjusted to the available man power in that district. This was known from the census returns kept by means of quipus and from the information supplied by local chiefs. As the vast majority of the population was engaged in agriculture, care was apparently taken to undertake these communal labors when agricultural needs were least.

Workers in other industries, such as metallurgy, similarly worked for the state. All their production was taken over by the state and stored in warehouses or shipped to some distant part of the country, while the workers themselves received in return from the state their food supplies, fuel, and housing. The system worked admirably.

This tremendous example of communism must not be looked upon as a highly successful experimental application of socialistic theories. It was not the experiment of a people who had tried capitalism, but a natural evolution of the communism of a small primitive community, which by expansion had become an empire. The Incas themselves certainly had little sympathy with theories that all men are equal. As the brains of the communistic state they considered themselves to be far superior to the rank and file, and lived in a style befitting their station. Nevertheless, everyone able to do so was made to work—the

rank and file in manual labor, the Inca caste as brain-workers.

Special men were in charge of the quipus. Using them as mnemonic aids, they were apparently able to keep tallies of population, supplies, drafting of labor, llama herds, and probably a skeletal history. The abacus was also employed in counting.

All the known quipus that exist at the present time have been found in graves. Nordenskiöld has recently shown that these represent calculations of years and months together with calculations of lunar periods. He suggests with a good deal of probability that these quipus were owned by sorcerers or medicine-men, and were used for divinatory purposes. The years are calculated at 365 days, and sometimes grouped in ten year periods, the Peruvian reckoning being based on the decimal system.

Although only chronological quipus with a magical basis appear to have been buried in graves, others were used for other purposes. The typical quipu (Case 28) consists of a long cord from which hang a number of major cords, varying in number from one to more than a hundred. The major cords have an average length of about one foot. Minor cords were attached to these. The reckoning was made by means of knots. Each cord was divided into zones, the lowest representing the numbers one to nine; higher up the second digits, ten to ninety, were recorded by knots. Higher again was the space for the third digits, one hundred to nine hundred, and if necessary the spaces could be continued indefinitely in the decimal system. Each unit of a digit was expressed by a knot. Thus 237 was expressed by two knots at the top, a space, three knots, a space, and finally seven knots. There are other complications too involved to be discussed in this publication.

Colors appear to have indicated the subject of a calculation. Early writers tell us that red cords dealt with war, black with the calendar, carmine with the

Inca, gray with provincial matters, and so forth. The minor cords apparently must have been used for subheadings. Thus, if a cord gave the population of a province, town by town, the minor cords may have given the number of children or members of each age group in each town. There is no definite proof of this statement, but it is quite possible that the method was such as has been indicated.

In their use of roads the Peruvians were more advanced than their contemporaries in Europe or the New World. Well-built roads were used in certain restricted parts of the Maya area, around the valley of Mexico and in Colombia, but they reached their highest level in Peru during the period of the Inca Empire. A series of roads linked the extremes of the empire to Cuzco. The construction of these in the mountainous areas involved a considerable amount of engineering ingenuity. Cieza (Markham translation) makes the following comments on the Highland roads:

"Some of them extended for over one thousand one hundred leagues, along such dizzy and frightful abysses that, looking down, the sight failed one. In some places, to secure the regular width, it was necessary to hew a path out of the living rock; all of which was done with fire and their picks. In other places the ascents were so steep and high that steps had to be cut from below to enable the ascent to be made, with wider spaces at intervals for resting places. In other parts there were great heaps of snow, which were more to be feared, and not at one spot only, but often recurring. Where the snows obstructed the way, and where there were forests of trees and loose clods of earth, the road was levelled and paved with stones when necessary."

Suspension bridges were constructed for the traversing of broad rivers or gorges. The cables were made of osier or agave rope, and fastened to rocks, or, failing these,

masonry piles. Over the cables were placed planks or hurdles, and supplementary cables served as hand-rails. These bridges were sometimes as much as two hundred feet long. With the natural sag and the oscillation such a crossing must have been a nerve-racking ordeal.

For crossing rivers where the current was not strong, balsas, the Peruvian reed boats, were employed. These consist of bundles of reeds tied together to form a raft, roughly shaped as a boat, and provided with a sail. A chain of these balsas occasionally served as a floating bridge.

Along the main roads small houses were built at intervals of about a mile and a half. At each house were two runners, selected for their speed. Their duty was to relay messages from one post to another. By this means messages were sent from Quito to Cuzco, a distance of over one thousand miles in a direct line, in seven days. In addition to messages, they also relayed game, fish, and fresh fruits from the coast to Cuzco. The runners, who wore a special uniform, were known as chasquis, and in this connection it is interesting to note that the word survives at the present time in far-off Argentina to describe a messenger or a mail carrier on horseback. The word probably penetrated to the Argentine at the time northwest Argentina was incorporated into the Inca empire.

The roads also served for the movements of the army, and the transportation of supplies to the forces in time of war and for the interchange of products in time of peace as described above.

On the coast, where sand took the place of mountains, gorges, and snow as the chief obstacles, the roads ran between walls, and trees were planted along the edges to provide shade.

Perhaps the engineering skill of the Incas is better shown in the construction of the fortresses. Some of the

FIG. 2. Lacquered wooden vessel. The design shows a battle between Peruvian soldiers, armed with mace and thrusting spear, and men from the trans-Andine region, armed with bows and arrows. It was made by natives of the Highlands of Peru, probably at about the time of the Spanish conquest (Stanley Field Hall, Case 6).

stones employed in the fort which domineered Cuzco were as much as thirty-eight feet long, eighteen feet broad, and some six feet thick. Acosta measured a stone of this size at Tiahuanaco, and states that at Cuzco some of the stones were even bigger. The stones were adjusted without the use of any mortar or cement, but with such accuracy that one of the early writers tells us that it was impossible to insert the blade of a knife in the join.

The fortress consisted of three towers. One of these served as a residence for the Inca, and the other two housed the garrison, which was composed only of members of the nobility. The whole was defended by a great wall of immense thickness. On the most accessible side the wall was double. The space behind the walls was raised so that the garrison could use the walls as breastworks, hurling stones and other implements on the attackers.

For close fighting the principal weapon was a mace, the head of which was made of stone or bronze in the shape of a six-pointed star. In the bronze examples one of the points is sometimes replaced by an ax blade (Fig. 4, *g* and *h*). Early Chimu pottery shows men fighting with shaftless metal axes held in their hands. This strikes one as an extremely ineffective weapon, and since the fights appear to be largely of a ceremonial nature, it is possible that they were not so employed in real warfare. T-shaped axes of bronze were manufactured in the Late period, and it is possible that these also were employed in warfare (Fig. 4, *a*).

For long range fighting the sling (Case 32) was the chief weapon. On the coast the spear was also used, and for its propulsion spear-throwers were employed. It is possible that the spear-thrower became to a large extent obsolete in the Late period. The bow and arrow were known, but practically never used. Scenes on a wooden bowl (Stanley Field Hall and Fig. 2) show a battle between Peruvian soldiers armed with star-headed clubs and an enemy using bows and arrows. It is possible that

the enemy were the Chiriguanos or some other trans-Andine tribe, which used this weapon. Round or square shields, apparently of wood, were used in defense, in addition to wooden helmets and padded cotton quilts.

Everyday clothing varied in different parts of Peru at different periods, and, naturally, the rank of the wearer influenced dress. The great contrast in climate between the coastal lowlands and the highlands also meant considerable differences.

A breech clout was universally worn by men. It consisted of a rectangular piece of cloth, frequently with designs worked into it, and sometimes with strings attached at one end for tying. A shirt was almost invariably worn by men. This consisted of a rectangular piece of cloth with a hole for the head. It was sewn down one side, and armholes were left. Frequently short sleeves were attached, but in the late Inca period sleeves seem to have gone out of use. The shirt was often very short, only reaching to the base of the chest, but sometimes they were made so as to reach to a little below the waist (Cases 24 and 25).

The shirt was often replaced by a rectangular piece of cloth that served as a mantle. Two ends were knotted over the chest or the mantle was passed over one shoulder only and tied under the other arm. Sometimes both of these garments were dispensed with, and a broad collar, that tied at the back of the neck, was worn.

Head-dresses of every description were worn, but certain styles denoted certain ranks. The ruling Inca alone had the privilege of wearing a short red fringe on the forehead held in position by two bands. In addition to this, the Inca wore on ceremonial occasions a semi-circular miter of gold. The high priest wore a head-dress of macaw feathers decorated with gold ornaments.

Pottery vessels from the Chimu area sometimes show nose ornaments. These are either circular or crescentic.

Two excellent examples of the latter type may be seen on portrait jars displayed in Case 20. Ear-plugs are to be seen inserted in the ears of many of the figures in Cases 20–23; those in the last case, representing the Ancon-Chancay area, differ from the general type in that they are hollow. Ear-plugs were also made of silver or of wood or pottery decorated with mosaic designs. Some of the most beautiful ear-plugs achieve their effect by designs in intaglio (Fig. 5, *e;* Case 28), and the simplest are those to be seen on the false mummy heads from Ancon (Case 26). These consist of short stalks of reed bound round with sections of reed leaf and sometimes with a simple star-shaped design in the center made with leaf. As already remarked, the wearing of ear-plugs was a privilege of the Inca nobility, but it is possible that at an earlier period their use was not so restricted.

Arm-bands, consisting of a single sheet of metal wound round the wrist and about three inches in length, were worn, in addition to metal finger rings. Necklaces of every type were worn by both sexes. Some of the most beautiful are made of shell, carved as small llamas or in human shape (Case 28). Unfortunately, nearly all the examples of gold ornaments have found their way into the melting pot or have been lost.

Many examples of face-painting may be seen in the cases devoted to the Early Chimu and Ancon-Chancay cultures. Painting usually occurs on the hands, arms, legs, or face, and occasionally on the chest. Tattooing was also practiced, as examples on the desiccated bodies of mummies show. The designs employed in painting and tattooing range from simple lines to elaborate geometric patterns and highly conventionalized bird and fish figures.

Sandals, made of rawhide, wool, or agave fiber, were worn. Usually they were attached by an ankle strap and a second strap passing across the foot just behind the roots of the toes, but sometimes the second strap passed

between the first and second toes and was attached to the ankle strap.

Women of the Chimu area wore a long shirt, with sleeves, reaching to the knees, and held at the waist with a belt, but during the Inca period the usual garb for women in the Highlands consisted of a large mantle which was wound round the body from below the armpits so as to leave the arms free. It extended to the feet, and was held at the waist by a broad belt. Over this was frequently worn a second mantle, which covered the shoulders and reached below the knees (Cases 24 and 25). The edges of this were pinned together at the breast with pins of silver, gold, copper, bronze, or bone, called topos. Generally these consisted of a flat disk, occasionally with incised decoration, to which was attached a slender pin about four inches in length (Case 29).

The hair, which was worn long, was held in position by a fillet that encircled the head, but women of rank wore a folded cloth on their heads. Superfluous hair was removed with metal pincers (Fig. 5, *d* and *f*). On festive occasions young girls decorated themselves by painting a line from the eyes to the temples. Women are rarely represented on Peruvian ceramics. Hence it is difficult to reconstruct the clothing of the pre-Inca women of the coastal cultures, of which no descriptions have been left by early Spanish writers.

The task of weaving and spinning fell to women, although men occasionally wove. Each woman wove such simple wearing material as was required by her household, while the virgins of the sun and other specially appointed women, skilled in the craft, wove fabrics of the best quality for religious purposes and for the use of the Inca and the members of his order. The materials used were brown and white cotton on the coast, and llama, vicuña, and alpaca wool in the Andine areas. Actually there was a certain interchange of raw material between

the two areas, and occasionally coarse fabrics were made of a fiber obtained from a plant of the aloe family.

After cleaning and carding, the cotton or wool was spun onto delicate wooden spindles with decorated clay beads or bamboo bands threaded on them. In Cases 23 and 32 may be seen oblong workbaskets containing boluses of unspun and balls of spun cotton as well as spindles of the types described. The beads or bands, apparently, did not serve as whorls, but were used to prevent the spun cotton from slipping off the spindle, which was largely used as a bobbin.

Peruvian yarn of the finest quality reached a degree of perfection never seriously rivaled in the world's history. One textile expert, in reference to Peruvian yarns, has written: "So far as the spinners of what we call modern civilization are concerned the ideal has been realized, and belongs rather to the past than to the present or the immediate future. The perfect thread is not to seek; it has been made." Peruvian yarn was frequently of an incredible fineness unattained by modern spinners.

The loom on which this yarn was woven consisted of two sticks. The warp threads were strung over strings of soft yarn parallel to the sticks to which they were attached. One stick was tied to a post or tree, while the warp was held taut by a band attached to the other stick, and passing around the small of the back of the weaver. Occasionally the loom was stretched between sticks held by four posts, and in the finest tapestry work the warp was attached directly to the end sticks.

Peruvian textile art (Cases 24 and 25 and Fig. 3) reached its highest level in the production of tapestry, which may be classed as a darning of weft threads over and under the warp, the former being beaten down so as to cover completely the latter. Actually the term is now used almost exclusively to describe decorated weaves in which the individual designs are separately darned.

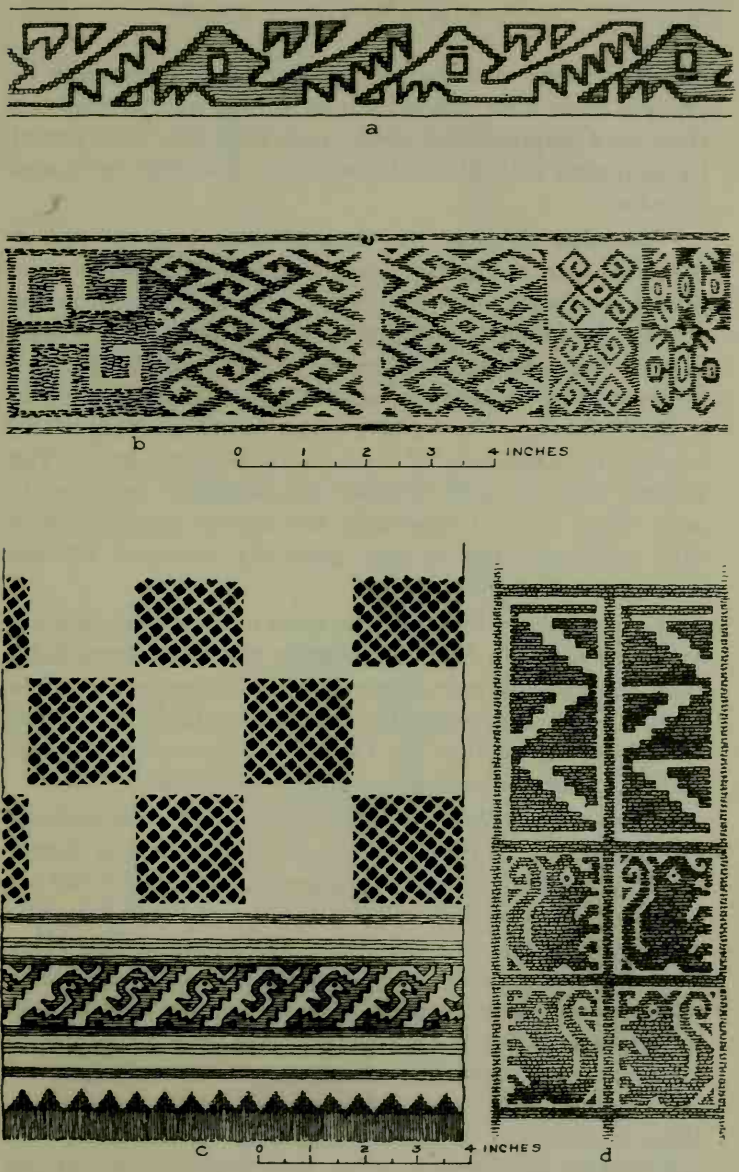

FIG. 3. Peruvian textiles. One example of double-weave is shown (*d*), and two examples of tapestry (*a* and *c*). Peruvian textiles are displayed in Cases 24, 25, and 32, and also in Stanley Field Hall (Case 20).

Sometimes the slits formed by the separate darning of areas of color were joined by interlocking weft; sometimes they were purposely left open; sometimes they were closed by wrapping with black thread so as to outline each area of color.

On other fabrics, the designs were embroidered or brocaded. In the latter case the design is formed by the insertion of additional weft while the textile is still in the process of weaving. Many of the coarser fabrics from central Peru are worked in the double cloth technique. Two sets of warp and two sets of weft are combined into a single fabric. The color of the fabric is changed by raising the lower sets of threads above the upper. The reverse sides of such textiles are naturally in opposite color (Case 28). Occasionally fine fabrics were woven in this technique, but it was generally reserved for the coarser fabrics of coca bags.

Gauze fabrics, in which the open mesh is held in place by inserting weft threads between the holes formed by twisting pairs of warp threads, were commonly used in Peru. They are frequently decorated with embroidered designs, easily worked on the open weave after its completion. Designs were also painted on uncolored cloth.

The ancient Peruvians shared with Asia a knowledge of tie dyeing. In this process a skein of thread is tightly bound with string at certain intervals. When the skein is dropped into the dye, all the surface is colored by the mordant save where it is bound. On removing the string the undyed sections form the pattern of contrasting color (Case 24). The process is somewhat similar to that used in the preparation of East Indian *batik*, where the surface not to be dyed is painted with hot wax, which is removed after dyeing. This wax technique was used from northern Peru to southern Mexico in painting pottery, but not, apparently, for textiles. This is strange in view of the short step involved in a change from one material to another.

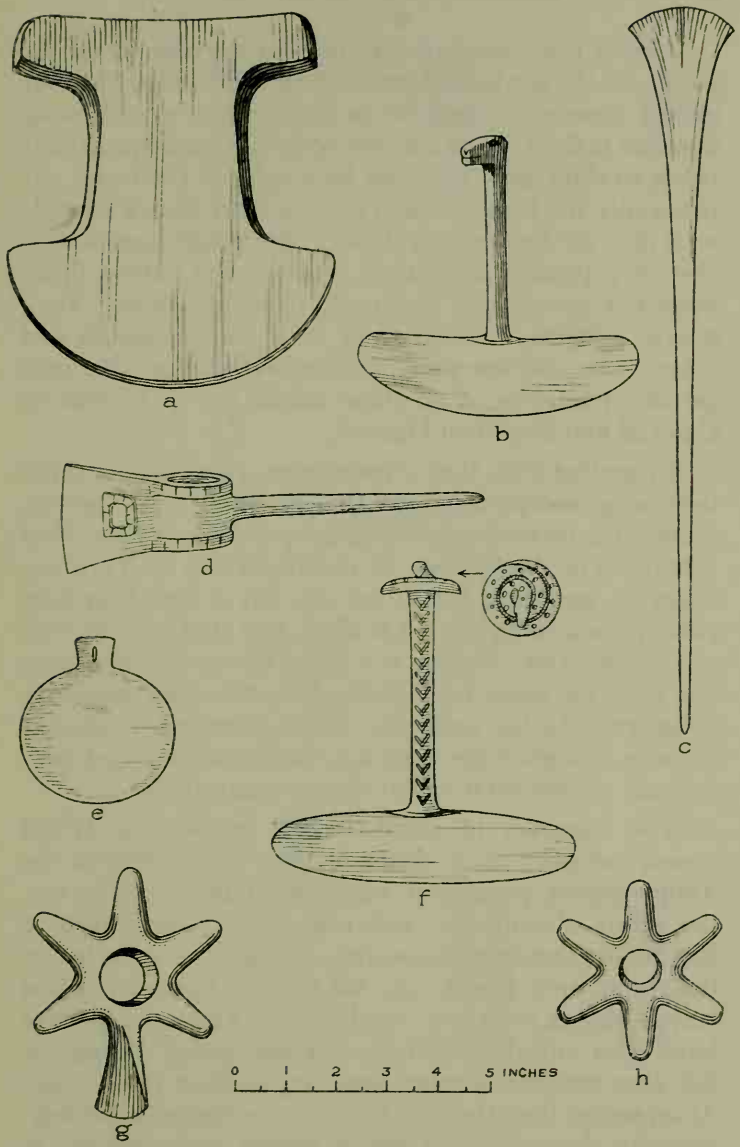

FIG. 4. Peruvian metal work. Bronze and copper implements of shapes typical of the Inca period. They are from the southern Highlands of Peru (Case 32).

Among the coastal peoples of Peru the commonest art motif was the fish in all degrees of conventionalization, but almost invariably depicted as though one were looking down on it from above and the body had been opened out below to show both eyes and both sides of the body. At times only the head, reduced to little more than a triangle with dots for the eyes, is shown. Birds and pumas were also very popular art motifs, whereas the human form, while not uncommon, is of much rarer occurrence. Geometric patterns, derived from these animal motifs and others, are also common, particularly during the Inca period. Examples of all these motifs are to be seen in Cases 24 and 25 and on Figure 3.

In another field, that of metallurgy, Peru, including the territories incorporated into the empire at a late period, achieved a marked superiority over the rest of the New World. The beginnings of metal-working in Peru are found on the Early Nazca horizon, but at that time only gold appears to have been worked, and that only in very small quantities. During the Early Chimu period copper was used for tools, but casting in molds was seemingly unknown. As the centuries passed there was a marked increase in knowledge of metals, their smelting, and casting, and the output of metal objects rose rapidly.

The discovery of metal-working in the New World appears without much doubt to have taken place in the Andine region, possibly in northwest Bolivia. Here, too, the art of alloying tin with copper to produce bronze was almost certainly discovered, probably not long before the rise of Inca power. At the time of Pizarro's arrival bronze objects were very widely used. The tin appears to have been mined in Bolivia, and was added during the late Inca empire in percentages varying from three to six. At an earlier time the quantity of tin varied considerably. Actually the proportion added tended to be smaller in working implements than in ornaments. The reason for this was, apparently, that objects with a lower percentage

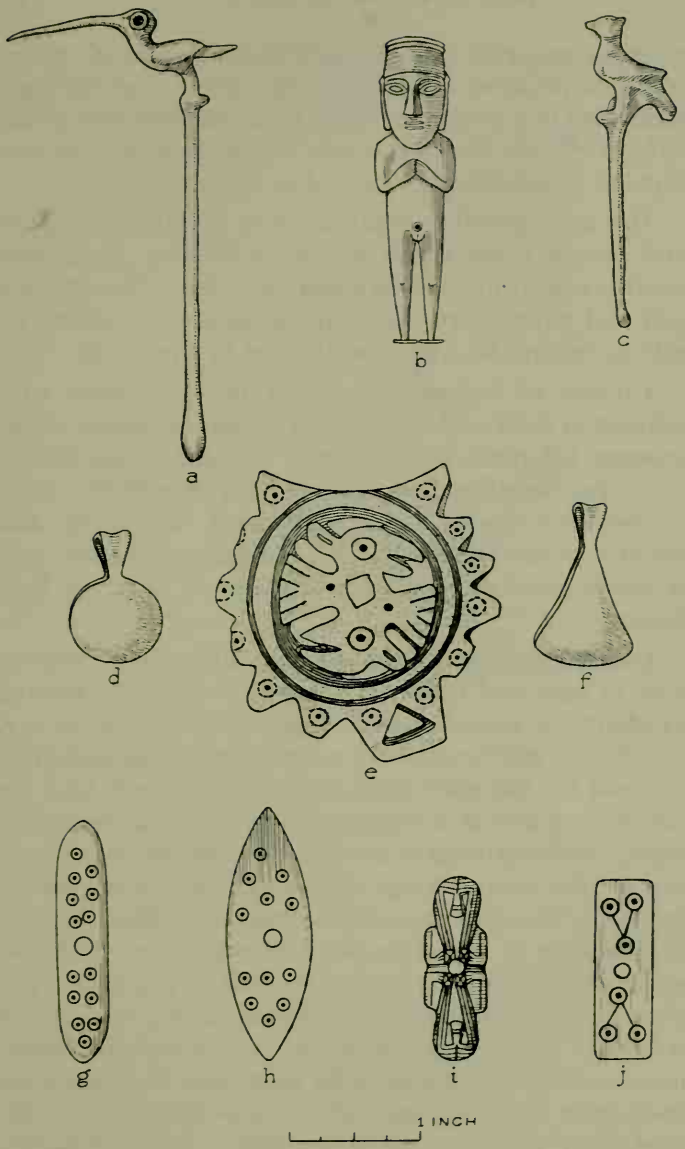

FIG. 5. Metal and bone work. *a–d*, and *f*, Silver and bronze objects from Peru, *d* and *f* being depilatory tweezers; *e*, An ear-plug from Peru; *g–j*, Worked bone ornaments or counters from Caldera, Chile.

of tin are easier to cold-hammer. Examination of various bronze implements shows that the cutting edge has been hammered to a greater hardness than the remainder of the surface. Thus, in one instance the blade of a knife was found to be almost twice as hard as the haft (27 to 14).

Ore was smelted in small furnaces of pottery equipped with copper tubes which served as bellows, the artisan creating a draft by blowing down the tubes. For smelting gold and silver more elaborate furnaces were placed on hilltops, where the draft was supplied by the winds.

Objects of bronze and copper include knives with hafts set at right angles, long chisels, axes of various types, tweezers for removing hair from the body, topo pins of the type described above, needles, hoe-blades, star-shaped club-heads, and combination star-clubs and hatchets (Case 32 and Fig. 4). These implements, cast in molds, were distributed practically all over the Inca Empire.

Other metals or alloys included gold, silver, and an alloy of gold and copper. These were used for making ornaments or simple utensils, such as spoons (Fig. 5, *a*, *c*, Case 28). Unfortunately the great booty of gold and silver obtained by the early Spaniards found its way into the melting pot, and as a consequence we are dependent very largely on the writings of the early conquerors for information on the great artistic skill displayed by the native jewelers. One eyewitness of the magnificence of the Inca court speaks of imitation fields of maize, in which the leaves were made entirely of silver, the ears of gold. The great treasure obtained by the Spaniards was largely due to the fact that an entirely new set of gold and silver ornaments and utensils was made for each Inca, for those of his predecessor were not used after the owner's death. Instead, they were shut up in the palace of the monarch, which was left untouched, except for the removal of objects required in the funeral ceremonies.

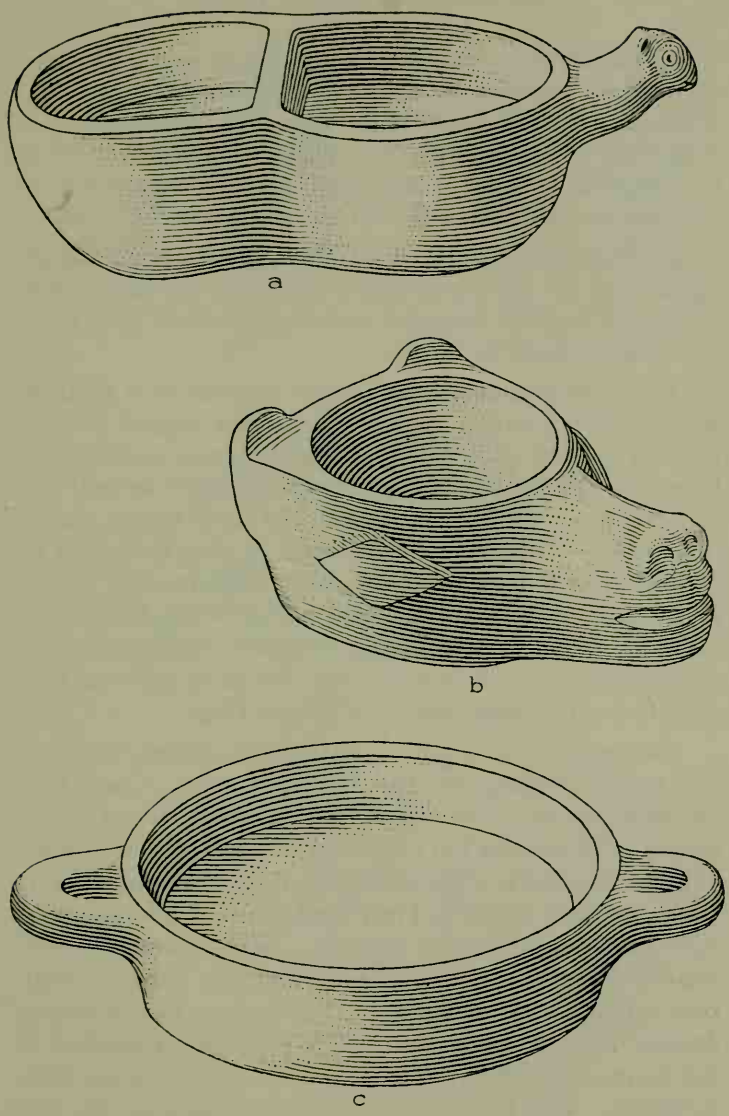

FIG. 6. Peruvian stone work. Examples of the excellent stone bowls made by the Incas. Cuzco and neighboring regions, Peru (Case 30).

At the northern limits of the empire, at least, a knowledge of how to solder copper with silver had been reached, while objects in repoussé technique are found all over the Inca empire. Metallurgy very probably passed from Peru to Colombia, whence it was relayed to Central America only three or four centuries before the arrival of Cortez.

Jade and turquois (Case 30) were also worked in small quantities, as well as granite, employed at an earlier period for making axes and club-heads, which at a later period were made in metal.

Very pleasing are the Peruvian mosaics on a shell or wooden background. Carving in stone lagged behind most of the Peruvian arts. Of small objects perhaps the finest are the beautiful stone bowls, of which several are to be seen in Case 31 (Fig. 6), and the stone llamas shown in Case 30. These last are supposed to have been used in fertility rites to increase the flocks in the same way as the stone maize cobs (Case 32) were placed in the fields, it is believed, to ensure a bountiful harvest. Small models of temples were carved in stone, and the same material was used to form peculiar gambling boards (Fig. 7).

Carved wooden objects called (for convenience) paddles, are not uncommon on the Peruvian coast (Case 21). In these paddles, the designs on the edges depict birds, pumas, and men in full relief. Wood was also decorated with lacquer work. The examples of this lacquer work in Field Museum (Stanley Field Hall, Case 6) all appear to date from the sixteenth century. While some of them clearly show by the intrusion of European elements that they are of post-conquest date, others show purely native designs, and may have been made prior to the coming of the Spaniards. Moreover, there is definite evidence that lacquering was practiced before the coming of the white man.

In Figures 2 and 8 are shown drawings of the designs on two of these vessels. The original colors are red, yel-

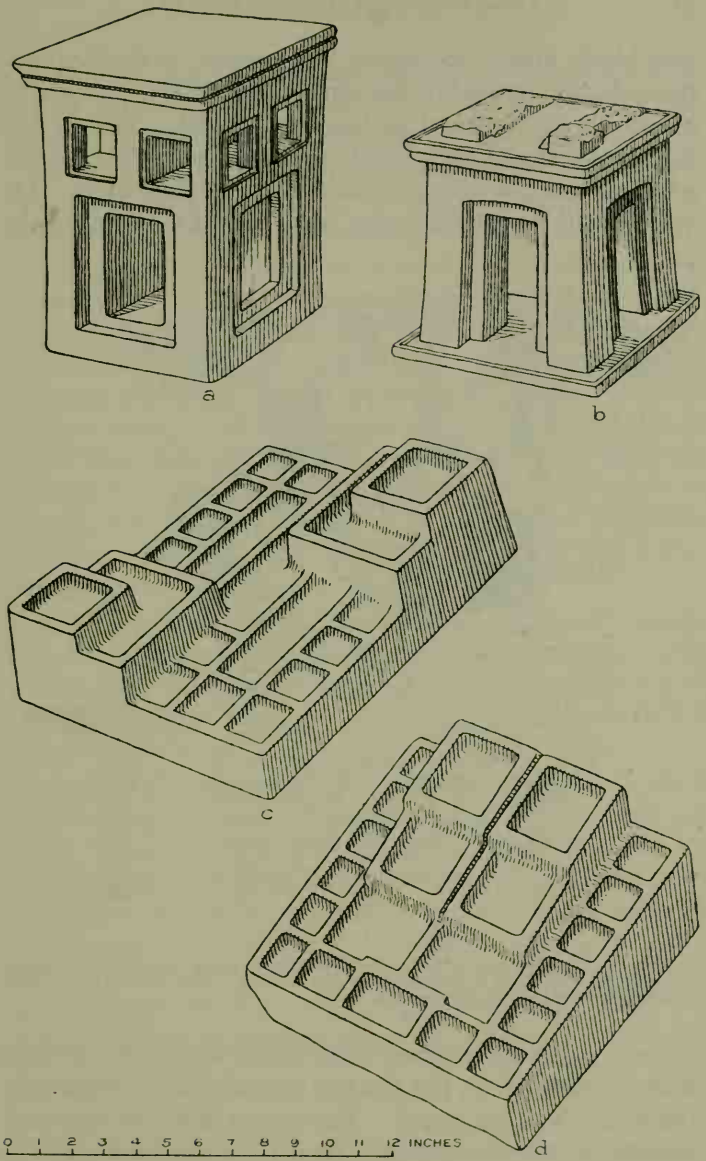

FIG. 7. Inca stone work. *a*, *b*, Models of Incan temples; *c*, *d*, Game boards. All are from vicinity of Cuzco, Highlands of Peru (Case 30).

low, black, green, and white. The wood, of the Leguminosae family, probably the genus *Caesalpinia*, appears to have been first covered with a light varnish. The surface to be painted was then lightly engraved with the required pattern, and the colors painted on the incised areas. On some of the vessels the color was painted straight on the

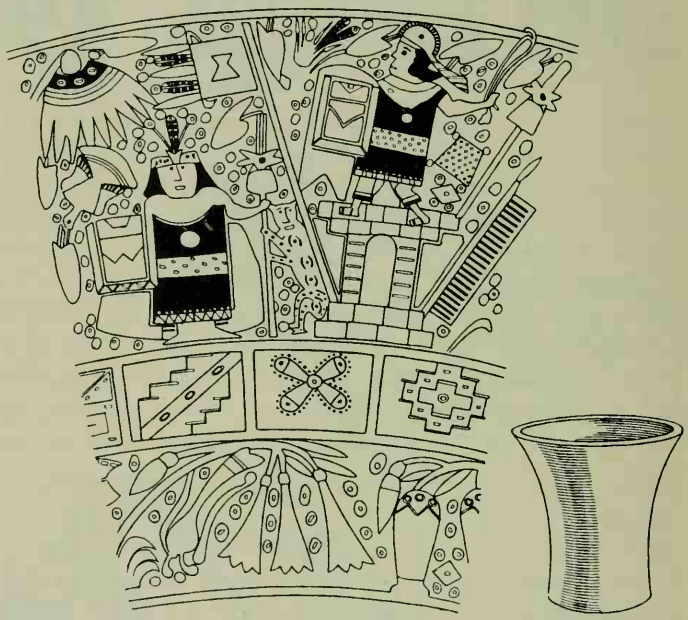

FIG. 8. Peruvian lacquer work. One of a large collection of brilliantly lacquered wooden vessels displayed in Stanley Field Hall (Case 6). They were probably made very shortly after the Spanish conquest.

vessels, particularly where large areas were to be covered with the same color, but the two techniques are frequently found on the same vessel. The scenes depicted represent battles, in one case between rival Peruvian forces, in the other between Peruvians and Indians of the regions east of the Andes, possibly the Chiriguanos, armed with bows

and arrows. The typical clubs, slings, hatchets, and shields of the Inca period are represented. One individual appears to be standing on a building. If that is the case, the vessel must have been painted subsequent to the Spanish conquest as the doorway of the building has a true arch unknown in Peru before the arrival of the Spaniards.

The pottery produced in ancient Peru has been discussed in connection with the historical outline of Peruvian civilization. The great dissimilarity between the products of the different areas can be quickly appreciated by a comparison of the types of pottery displayed in the various cases. It would be impossible to find greater contrasts than those existing between Nazca, Chimu, and Inca (Plates I–III and Fig. 1). Nazca is characterized by a dazzling use of color, Chimu by its naturalistic modeling, and Inca by its use of subdued patterns, largely geometric, painted on vessels of ingenious shapes.

Perhaps these varied forms of art give us an insight into the heterogeneous peoples that once occupied Peru, and at the same time permit us to grasp the magnitude of the problem that faced the Incas of welding them into a coherent whole.

Inca civilization with its peculiar blending of state socialism and autocracy presents a unique subject for study. Furthermore, the high levels of art achieved by the component parts of the empire and the great engineering ability of the Incas are but two features that add to the interest of the problem. The comparative isolation of the ancient Peruvians, also, shows us ways in which the human mind, uninfluenced by outside contacts, solves the same problems in different ways.

IV. NORTHWEST ARGENTINA AND NORTHERN CHILE

The area of northwest Argentina, comprising the mountainous regions of the modern states of Tucuman, Catamarca, La Rioja, Santiago del Estero, Salta, and San Juan, formed a cultural area, to which the name Diaguite is given. In older publications this civilization is called Calchaqui from a small tribe of this name, which came to the fore by its tenacious resistance to the Spaniards. Actually the Calchaquis were merely a subdivision of the Diaguites.

Although no vocabularies have survived, place names indicate that the Diaguite language, called Caca, was not related to the Quechua or Aymara tongues of Peru. Nevertheless, after the incorporation of the Diaguite territory into the Inca Empire the Quechua language of the conquerors was widely spoken. This may have been due to the Inca custom of planting Quechua colonies in newly conquered territory.

Diaguite culture has a strong resemblance to that of Peru, although the degree of civilization attained by the former was not so high. This similarity was partly due to the fact that both cultures had their roots in the same early agricultural horizon, which was widely spread over the Andine region, and partly due to the conquest of the country in the middle Inca period.

The Diaguites lived in villages usually placed in inaccessible positions, such as hilltops. The ruins consist of walls of well-laid stone having an average thickness of about two feet and, as a rule, a height not exceeding three feet. No mortar was employed, but mud was occasionally used in its place, although the stones were so carefully laid that in many cases they are still standing despite the lack of binding material. In many cases the walls are not pierced for doorways.

One can conjecture that the low stone walls were additional to ordinary walls constructed immediately inside them of white algarrobo posts, while the roof, perhaps independent of the rest of the structure, was supported by corner posts. In other words, the buildings were probably of poles with a thatched roof, and the low stone walls were additional protection against cold. If this type of structure was in use, the doorway would have been placed in the pole walls, and one would have stepped down from the stone wall into the room. Occasionally the stone walls are carried up to a height of more than six feet and provided with a doorway and stone lintel. Remains of roof beams suggest that the thatched roof was supported by the stone walls, while some of the stone enclosures are of such a size that they could not have been satisfactorily roofed. These may have served as communal men's houses or for religious functions.

Very occasionally walls were made of adobe bricks. Structures were usually rectangular, but oval houses were not unknown. The villages themselves vary in size from a few houses to centers of considerable population, but there is little evidence of any attempt to lay out the houses to a definite plan. In many parts the buildings are so close together that it has been suggested that the tops of the stone walls were used as pavements.

The Diaguites were primarily agriculturalists, although hunting also supplied a good share of the food. The hillsides were sometimes terraced to prevent erosion, but this was far from being a general custom. Several varieties of maize and beans were cultivated in addition to such important plants as potatoes and squashes. Presumably most plants cultivated in the Peruvian Andes were also known to the Diaguites.

The appearance of certain stars was awaited before sowing commenced, while the sprouting of the crops was marked by an organized hunt. The first guanaco or agouti caught was sacrificed, and the blood sprinkled on the

growing crops. Elaborate feasts were held to insure the fertility of the soil and a bountiful harvest. These feasts were organized by the leading men of the community, and were the occasion of orgies of drunkenness, probably of a ceremonial nature. Sometimes the orgies ended in battles, in which weapons of war were often employed. These fights, too, were probably part of the fertility rites, since we are told that it was considered a disgrace to refuse to participate, while wounds obtained in these frays were esteemed as marks of honor.

During the ceremonies, the head of a deer, transfixed with arrows, was offered to the sun. The head was subsequently given to another sorcerer, who by its acceptance bound himself to give the next feast. At the approach of harvest time, the first fruits were suspended from trees in sacrifice.

The white algarrobo tree, in addition to its use as a source for house posts, yielded a fruit much esteemed by the Diaguites. When the fruit was ripe, there was a general exodus of the whole community to the woods to gather the crop. This was the occasion of more feasting and drunkenness, probably also of a ceremonial nature. A fermented liquor was made from the fruit of this tree.

Llamas were bred for their wool and as beasts of burden, but they are said to have been of a smaller size than those of the Peruvian Andes. Ducks and hens (probably guans, *Penelope obscura*) were raised for their feathers and as a food supply, and there is a possibility that numbers of wild hogs were also kept in captivity. One early writer speaks of the rhea or American ostrich as having been domesticated by the Diaguites. This bird is easily reared in captivity, but it is doubtful if it was domesticated in our sense of the word. The feathers served as ornaments, the eggs in all probability as food, since they are frequently used in Argentina at the present time in omelets, and the lining of the stomach, again to

judge by modern custom, was employed for medical purposes.

In hunting and warfare the principal weapon was the bow and arrow, and in this connection a bracer of copper or silver was worn on the left fore-arm. Arrows were carried in large quivers, and we are told that bows and arrows were never out of reach of their owners. The points of the arrows were of exceedingly well-chipped stone, either with or without tangs, but invariably provided with short wings (Case 36). More roughly worked stone spearheads are to be seen in the same case, while on the opposite side are well-made points of llama or guanaco bone. It is difficult to say if these were used as arrow- or spear-points owing to their intermediate size, but it is more probable that they were used as spear-points.

The bolas was also used in hunting game. This peculiar weapon, as used in ancient Peru, consisted of two balls of stone or copper united by a thong or plaited rawhide some four feet or more in length. The hunter, grasping it by one ball, whirled it round his head and then threw it at the feet of the game he wished to capture. The cord, on hitting the animal's legs, wound itself round them on account of the weights at each end. In this way the animal's legs were bound so that it could not escape. The balls were wrapped in hide which was attached to the plaited rawhide. Among the modern gauchos of Argentina the bolas is formed by three stone balls instead of the two typical of ancient Peru, but it is not known if the Diaguite bolas was of two or three balls.

A long robe of llama wool was worn. This reached to the knees, and was held at the waist by a belt. Topo pins of silver, gold or bronze were used to pin the edges of the robe together. Several examples of these can be seen in Case 36. During festivals feather head-dresses were donned, while the hair, which was left long, was knotted on top of the head. Chiefs wore fillets of copper

or silver or, sometimes, wool, and painted their foreheads black and the rest of the face red.

Other ornaments included necklaces of shell, turquois, sodalite, and numerous less valuable stones, amulets, frequently, in human or animal shapes, stone masks, possibly worn on the breast, and bronze or copper breast-plates. Examples of all of these are to be seen in Case 36. It has been conjectured that the large copper or bronze ornaments, such as those shown in this case, were worn as breast-plates, but of this there is no actual evidence. The types do not occur elsewhere in the Andine region.

Armlets of red wool were worn on the upper arm, and superfluous hair was removed with copper tweezers, similar to those of Peru (Fig. 5, *d* and *f*). Thick-soled sandals were worn on the feet. There is no information on women's costumes except the statement that girls during maidenhood wore brightly colored clothing, but, after their first intercourse with men, changed to somber-hued garments.

Of the daily life of the people little is known. Children underwent a ceremony of having their hair cut similar to that described on page 100. We are also told that boys were circumcised and that girls went through some sort of puberty ceremony. When a man was very ill, his relatives and friends assembled at his house and indulged in a carousal kept up day and night without ceasing. Ceremonial drunkenness appears to have played a very important part in Diaguite magico-religious procedure. The approach of death was warded off by planting a circle of arrows around the sick man.

The Diaguites, like most primitive peoples, believed that death was due to sorcery except when a man died a violent death. Food and drink were placed around the corpse, and certain herbs were burnt as a kind of incense. The mourners danced around the corpse, offering it food and drink, which they subsequently ate and drank them-

selves. The corpse was dressed up, and the clothing and principal possessions of the deceased were displayed. The ceremonies continued for eight days, at the end of which period the corpse was buried in his clothing, together with food and some of his possessions, and his house burnt. In the Londres section of the Diaguite area the eyes of the dead were left open so that they could see their way to the next world. Professional mourners, who proclaimed the virtues of the deceased, were also employed in this region, and possibly all over the Diaguite area.

For a year following the deceased's death the mourners wore black. At the end of that period the ceremonies were repeated. The dead we are told were converted into stars. A brother of the deceased married his widow.

Information on Diaguite religion is also scanty. The sun is said to have been the chief deity, but this may well have been the result of the Inca conquest of the country, since all subjected peoples were forced to acknowledge the sun as the chief god. The gods of thunder and lightning were also of very great importance, probably because of their close connection with the rains so necessary for the crops in the semi-arid country largely inhabited by the Diaguites. Trees were bedecked with feathers and addressed in prayer. Although there is no information to this effect, it is more than probable that the Calchaqui, like the Peruvians of the Highlands, endowed most natural objects, such as rocks, lakes, rivers, or mountains, with supernatural powers. Sorcerers and priests lived in secret places where they were in close touch with the divine beings.

A series of painted urns of considerable size may be seen in Case 39 (Fig. 15, *c*). These were exclusively used for the burial of children, and are found in large cemeteries containing no adult burials. In most cases the conventionalized faces show lines from the eyes which clearly indicate weeping. Snakes, which are symbols of lightning or rain over a great deal of the New World,

are also frequently depicted on these urns. Joyce, in a very interesting paper, "The Weeping God," has made out a very strong case for accepting these burials as those of children sacrificed to the thunder god to insure a bountiful supply of rain, the tears symbolizing the rain conferred by the thunder deity. It is possible that the children were made to weep before sacrifice, as in Mexico, to induce the thunder god also to weep; in other words to send down rain.

Among the modern inhabitants of the Diaguite region there are traces of pre-Christian beliefs, but those have clearly been influenced by Peruvian ideas; indeed, the native population now speaks the Quechua language of the Incas, owing largely to its employment by the Spaniards as a lingua franca.

Eight days after a death the widower or widow is taken to the nearest stream, where he or she is thoroughly washed, together with all personal possessions. The hair of the bereaved spouse is also combed and arranged for the first time since the death. The dog belonging to the deceased is likewise taken to the river, where, after a full meal, it is strangled and buried near the water.

Among the same modern inhabitants there are three important deities, all apparently of Peruvian origin, although their worship may have been incorporated into Diaguite religion before the arrival of the whites. These are Pachamama, Llastay and Chiqui.

Pachamama is, as her Quechuan name indicates, the earth mother. She is believed to dwell in the mountains, and to be the special protectress of all crops and animals. Offerings of food, coca leaves, and the lime to mix with them are made to her by being buried in the fields so that she may give a bountiful harvest, or are made on the hillsides when the men gather for a hunt.

Llastay, in contrast to Pachamama, the Lady of the mountains, is Lord of the plains and valleys. He is protector of the birds and a hunting deity.

Chiqui, also a Peruvian deity, is the bringer of all types of misfortune, such as earthquakes, droughts, or hurricanes. Offerings are also made to avert the evils he brings in his wake.

The rain-making ceremonies as used by the modern Indians are in all probability directly inherited from the ancient Diaguites. The people assemble beneath an algarrobo tree, and choose the best hunters, who are sent out on a two-day expedition to catch all the small game that they can. On their return men and women assemble. The game, such as guanacos, hares, and foxes, is sacrificed with great ceremony, the heads with necks attached being cut off. The bodies of the animals are roasted together with the bodies of the armadillos, from which the heads are not removed. The heads are divided among the participants, who, holding them by the necks, dance round and cause them to jump and swing about. In the center of the dancing circle is placed a jar containing the fermented juice of the white algarrobo fruit. Later each dancer places on his or her head a jar also containing the fermented algarrobo juice. As the people dance they shout, "The sun is burning." In certain districts they also dance round an algarrobo tree, and conclude the ceremony with a foot race, in which men and women race to be the first to reach a prize placed in the branches of an algarrobo tree. The ceremonial importance of the algarrobo trees, both the black and white varieties, is a relic of the pre-Spanish culture.

The Diaguites showed a fair skill in pottery-making and ornamentation. The variety of shapes produced is certainly very great, but not enough is known of the sequences of types to place them in chronological order. Of considerable interest are the bowls with the head and shoulders of a man in relief at one end, indicating that the bowl itself is meant to represent his body (Fig. 9, *a*). This specialized form occurs sporadically over a wide area. A very fine example from Colombia is shown on

Figure 16, while the type has been found as far north as Guatemala. It is also of frequent occurrence in the Marajo culture of eastern Brazil. It is not improbable that the idea diffused from the Argentine, perhaps spreading to the Tupi-Guarani Indians and being carried by them to the Amazon region. This, however, is pure speculation.

The best pottery produced, so far as paste and firing are concerned, comprised a class of vessels decorated with designs in vivid red, black, and white. The walls are very thin, the paste is of good quality, the firing excellent, and the colors are much firmer than those on vessels of other wares. A number of these vessels (Plate VI; Case 37) are in the form of deep well-shaped bowls with small upturned birds' heads in relief, while at the opposite end low projections undoubtedly represent the tails. In form these vessels can be grouped with the human type described above. The vessels of black ware, often with designs formed by cross-hatching incisions, are also very well made and fired, but the class of ware used for the large urns, their lids, and certain bowls is inferior, the firing is not thorough, and the colors are frequently fugitive. Exceptions, such as the fine vessel shown on Figure 9, *a*, do, however, occur.

The designs on the funerary urns and related vessels of this Santa Maria ware are both geometric and naturalistic. The patterns are frets, zigzags, crosses, and step designs. The naturalistic designs include snakes, ostriches, and frogs.

One group of vessels, known as Draconian ware, is decorated with designs representing a dragon-like monster, or with motifs taken from single elements of this monster. The designs are totally distinct from those found on Santa Maria vessels, but the two styles were contemporaneous. Many of the black vessels with incised decoration undoubtedly owe their inspiration to the Draconian style (Case 35).

FIG. 9. Diaguite art, Argentina. *a–c*, Pottery of the Santa Maria type; *d–f*, Metal work in shapes found only in this region. A disk, a bell, and a "scepter" are shown. *a*, Amaicha, Tucuman; *b–d*, Tafi, Tucuman; *e* and *f*, San Isidro, Salta (Cases 35–37).

The tripod bowl, so common from Central America to Ecuador, and also occurring in northern Peru, is unknown in the Diaguite region. On the other hand, there are a number of distinctive local shapes, such as the "cream jugs" in black ware with broken-down Draconian designs, the Santa Maria type urns and their covers, and the vessels shaped as armadillos.

Many years ago Argentine archaeologists called attention to the strong resemblance in art and architecture between the Diaguite and the Pueblo cultures. The Diaguite and Pueblo III cultures were roughly contemporaneous, but the distance between the southwest United States and northwest Argentina is so great that direct cultural contact must be ruled out. The resemblances may be fortuitous or may be the result of survivals of traits once widespread in the New World. The latter explanation probably is partially correct, since some of the geometric designs, such as fret, zigzag, and step, used in the ceramic art of both areas are undoubtedly of very great antiquity in the New World.

Very typical of Diaguite culture are the large numbers of small pottery heads found in excavations. These have usually been broken off pottery vessels, but some are parts of pottery figures, which possibly served as idols.

Inca influence in the Diaguite region is shown by typical Inca vessels (Case 36) and others which are clearly local imitations of Inca vessels. The blending of Peruvian and Diaguite is well illustrated by the pottery vessel shown on Figure 9, *c*. Here the shape is clearly a modification of the barrel-shaped canteen found very frequently at Ica on the Peruvian coast, and contemporary with the early Inca influences. The Diaguite potter has rounded the square ends, but retained the looped handles on the top. In place of the typical geometric patterns, she has depicted a realistic rhea running at full speed with one wing raised as a rudder in just the way the rhea raises it in flight.

Field Museum also possesses a stone llama found at Molinos in the Argentine province of Salta, but similar to those from the Highlands of Peru (Case 34).

Inca pottery is found in the same graves as vessels of the local Santa Maria type (Figs. 9, *a*, *b*, and 15, *c*; Case 37), proving thereby that the two styles were contemporaneous, and since Draconian pottery is known to be of the same date as Santa Maria ware, there is no evidence at present of a lengthy ceramic development.

In the Diaguite area baskets were made in coiled technique, which is more widely distributed in South America than is generally supposed. One basket in Case 36 was covered with red ochre, while two others show faint signs of painted designs. Unfortunately baskets are rare, for perishable objects, such as baskets, gourds, or clothing, seldom survive climatic conditions in the Diaguite area.

Objects of metal other than copper or bronze are scarce in all archaeological collections from the Diaguite region. In Case 36 may be seen a silver strip which in all probability served as a fillet. Two holes punched close to both ends probably served as eyes for the cord that laced the fillet at the back of the head. There are also several topos, to which attention has already been called. One of these has a European design of a heart pierced by an arrow, and doubtlessly dates from the colonial period. In passing it might be noted that the Diaguite culture continued to flourish after the Spanish invasion. In Field Museum collections, but not on exhibit, are necklaces of blue glass beads and other objects of European manufacture found in Diaguite graves. Gold objects are exceedingly scarce in representative collections from this area. The two pieces shown in Case 36 were probably imported from Peru.

In variety of copper and bronze objects the Diaguite region excels any other part of the Inca Empire with the possible exception of Ecuador. This would suggest that

the industry was well established before the country was subjugated by the Incas, although metal-working in the Andine region undoubtedly originated in only one center. It would appear that after its primary diffusion to the Diaguite region, connection with Peru and Bolivia was lost for a considerable period, and local copper and, perhaps, bronze shapes were developed in the Diaguite region, but did not diffuse northward.

Of considerable artistic merit are the designs on gourds from the Diaguite area. Examples of these designs, which are reminiscent of those found on pottery vessels of the Santa Maria type are shown in Figure 10.

Peculiar to the Diaguite region are the large bronze bells shown in Case 36 (Fig. 9, *e*), although wooden imitations were fabricated in Chile. The scepter and the fine breastplate with jaguars in relief also represent types not found elsewhere in the Andine region. The knuckle duster is found only in this region and northern Chile. It is also possible that the socketed bronze ax was of Argentine origin, since it is found in most abundance in the Diaguite region. This represents an invention of prime importance. In the same case are shown two very large disks cast in bronze or copper. It is not known what purpose these served, for they may have served as gongs or merely have been cast in that shape for transportation, subsequently to be melted and recast in other shapes. Nothing similar has ever been reported from the Andine region. Pottery molds for casting have been found in the Diaguite region.

Field Museum also possesses two bronze or copper pestles from the Diaguite area. Hitherto no metal pestles have been reported from the Andine region. This is strange, for practically every stone tool was copied in metal by the Peruvians. One pestle closely resembles the stone prototype, while the second, lacking the tapering away from the base, may belong to a period when the shape was no longer influenced by stone pestles. Possibly

these pieces date from the colonial period and may be due to European influence.

The Diaguite metal objects in Field Museum have never been analyzed. It is, therefore, impossible to say whether the objects are of bronze or copper. It is known,

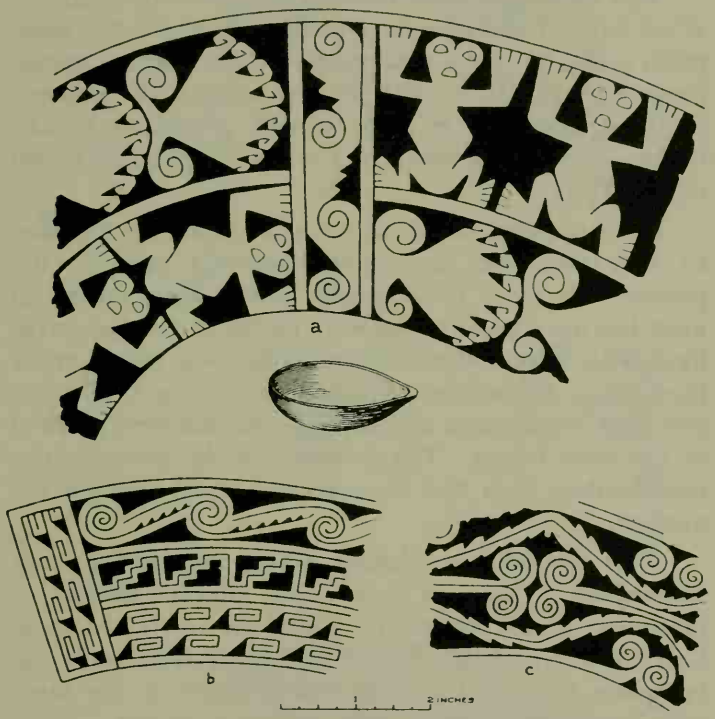

FIG. 10. Decorated gourds. Designs in poker work technique on gourds from the Diaguite region of northwest Argentina. The shape of the gourd is restored.

however, that the Calchaqui used objects both of copper and bronze, the latter probably representing a later period. The percentage of tin used in Diaguite bronzes runs considerably higher than in Peruvian bronzes and shows more variation.

Metal objects, the shapes of which are also found in other parts of the Inca Empire, include axes of several types, crescentic knife blades, chisels, hoes, star-shaped club-heads, combination star-clubs and hatchets, tweezers for removing hair, breastplate mirrors, needles, small bells, and vessels.

Two well-made stone mortars are shown in Figure 11 (Case 36). These may have been used for grinding algarrobo seeds, for maize was ground on flat narrow stones, roughly prepared and with no decoration. The mastery of the Diaguites over stone is well illustrated by the impressionistic faces carved on the breast ornaments shown on Figure 11.

Large numbers of burials have been found in addition to the cemeteries containing children's remains deposited in urns. Occasionally adults were buried in urns, but more usually they were buried in circular graves lined with stone and sometimes roofed over with a crude false vault. Sometimes a single individual was buried in a grave; at other times nine or more persons were interred in the same burial. The diameter of the graves varies considerably, from five to seven feet being, perhaps, the average.

With the dead, as already noted, were buried their possessions. These, in some cases, indicate the sex or profession of the deceased. Thus, the rattle shown in Case 36 was probably buried with a sorcerer, while the numerous decorated spindle whorls shown in the same case presumably came from women's graves. Some graves contain pottery of Inca types, confirming the historical evidence of the subjugation of the Diaguite country by the armies of the Inca (Case 36). Unfortunately the extensive Diaguite collections in Field Museum are not documented or segregated by graves, and even the proveniences are in some cases open to doubt.

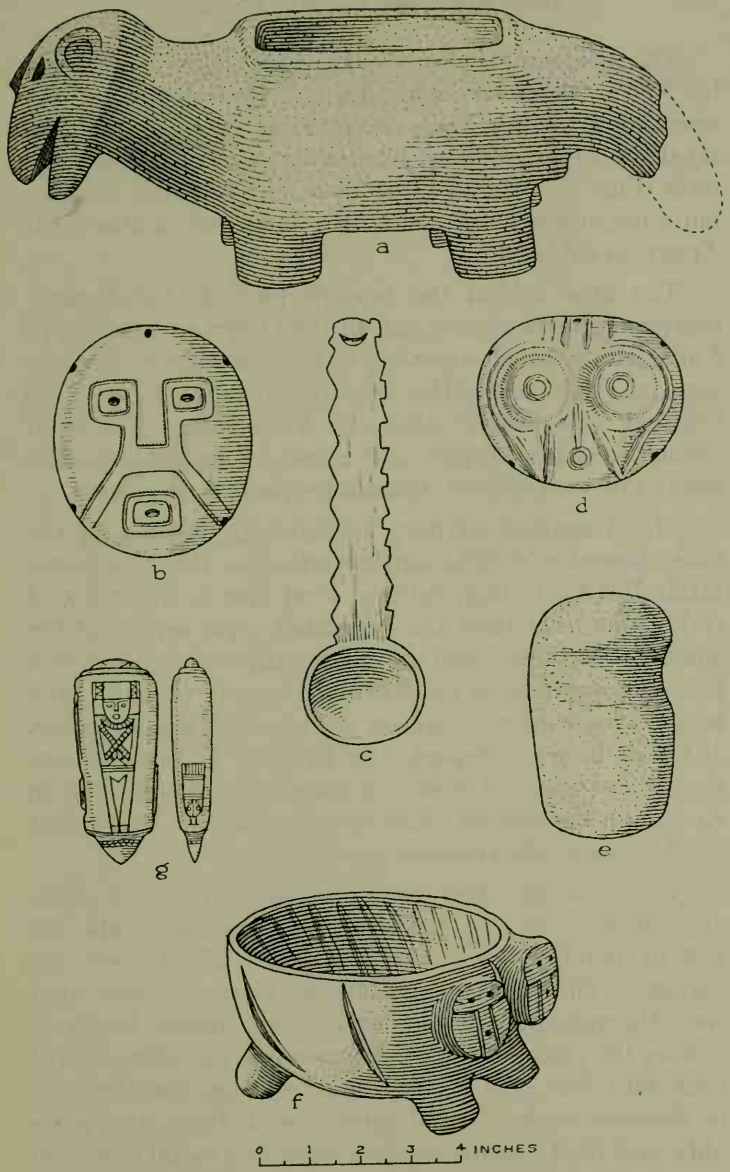

FIG. 11. Andine art. All except *g*, which is a stone die from Colombia (Case 17), are products of the Diaguite art of northwest Argentina. They are of stone, except *c*, which is a wooden spoon. *a*, *b*, and *f* are from Tafi, Tucuman; *c* and *d* are from Amaicha, Tucuman; *e* is from Santa Maria, Catamarca (Case 36).

The Diaguite civilization has been largely neglected by North American archaeologists; nevertheless, it was much more than a weak reflection of Inca culture. Its art shows a remarkable virility, while metallurgy and stone tools (Figs. 9, *d–f*, and 11, *e*) show an industrial adaptability not unworthy of a high place in the roll of aboriginal American cultures.

The area behind the modern port of Antofogasta, comprising the northern part of the Desert of Atacama in Chile, the puna of Atacama astride the Andes, and the puna of Jujuy across the Argentine frontier, formed the territory of a people called the Atacamans. The word "puna" is of local origin, and serves to designate barren sandy and rock-strewn uplands frequent in this area.

The Atacaman territory is singularly unfitted for the development of civilization; nevertheless, the Atacamans attained a fairly high cultural level due to the influx of civilization from Peru and Argentina. The aridity of the whole country has aided the conservation of objects which have not survived in the damper Diaguite territory, and as the two cultures were on a somewhat similar plane, although in some respects the Diaguite is superior, one can deduce that the objects of bone or wood conserved in Atacaman cemeteries must largely resemble those that were in use in the Diaguite territory.

There is no early account of the Atacamans that yields any information, and the modern descendants, who are few in number, have lost practically all of their old culture. The archaeological finds, however, show that the Atacamans practiced agriculture, raised herds of llamas, the wool of which they wove into clothing, chewed coca with lime, the former imported from the Peruvian or Bolivian Andes, traded actively with Peru, and probably with the Diaguite country, importing metal tools and ornaments, and achieved a high artistic level in carving wood and bone.

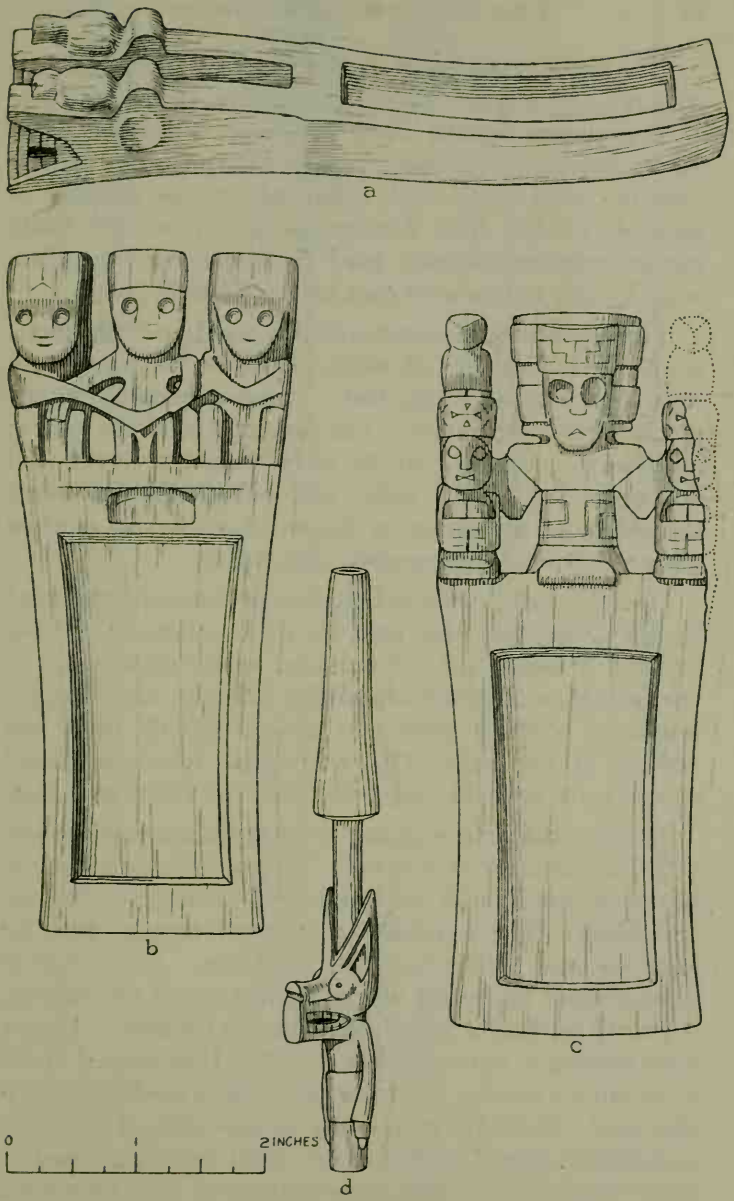

FIG. 12. Wood work from Chile. Beautifully carved wooden utensils from Calama. Atacaman culture (Case 38).

The finest examples of wood-carving are the small trays with relief figures serving as handles (Fig. 12, *a–c*). Some of the human figures show Peruvian influences, while others appear to represent purely native types. In one case the design has been enhanced by the inlaying of turquois studs. The Atacamans also produced finely carved wooden spatulae used for removing lime from small gourds to mix with coca leaves (Case 38).

Graves in the Atacaman area frequently contain short, angularly bent hooks of wood, to which ropes of llama wool are frequently attached. These apparently served as cinch rings for llamas. The rope that held the load in position was attached to the ends, passed over the load and under the llama's belly, and pulled tight by being slipped under the center of the wood piece and cinched with a downward movement (Fig. 14, *f*).

Wooden bells, made in imitation of those of metal used by the Diaguites, were used by the Atacamans. Those in Field Museum are not provided with clappers, but in the Oslo Museum there is a similar bell with nine clappers consisting of small sticks that project slightly below the bottom of the bell. The Atacamans also used small copper bells, probably imported from the Diaguite region.

For hunting and warfare, the Atacamans used arrows with foreshafts of hard wood. The reed shafts are sometimes decorated with narrow bands painted yellow, red, and black. The foreshaft is attached to the shaft by insertion into a hole bored in the latter. The whole is strengthened by thread wound tightly round the outside. A pair of feathers is usually attached to the butt. Arrows were carried in quivers made of hide. Disk-shaped stone clubs with a wooden haft passing through the center were also used. Field Museum is also in possession of a copper-socketed ax from Calama, which might have been used in war. The bolas and sling do not appear to have been used by the Atacamans.

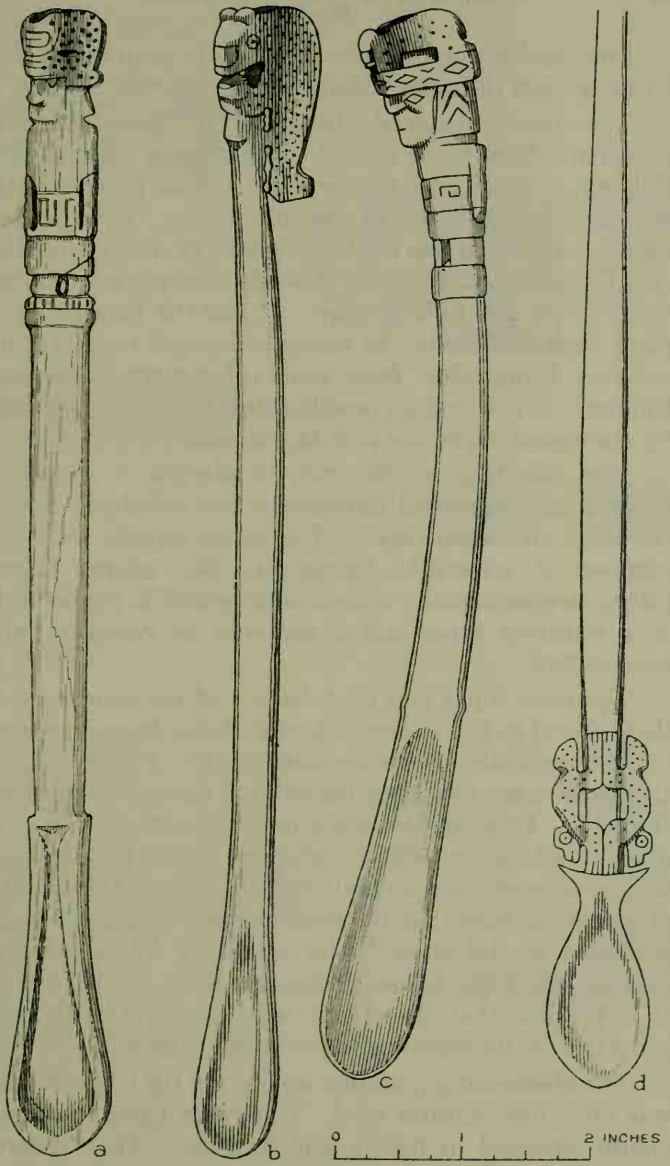

FIG. 13. Carved bone from Chile. Bone spatulae, which were probably used for removing lime from gourds to mix with coca leaves. They were found at Caldera (Case 38).

Fine baskets in the coiled technique were also made. In some cases these are painted with geometric designs.

The finest material, however, in Field Museum collections from Chile is said to have been excavated at Caldera, a small port on the coast. This is outside the supposed limits of the Atacaman culture. It is possible that the collection was made elsewhere, or, more probably, that Caldera was the site of a colony and garrison planted there during the Inca Empire. It was the Inca policy to plant such settlements in newly conquered territory, the colonists being taken from some other part of the Inca Empire. It is therefore possible that Caldera was settled by colonies of Peruvians and Atacamans.

The collection is very rich in objects of copper or bronze, whereas metal implements are relatively rare in the truly Atacaman sites. The metal objects include a number of crescentic knives (p. 86), mirror breast-plates, tweezers, many chisels, some smallish copper bells of a southern type, and a socketed ax complete with wooden haft.

The bone topos and spatulae are of the same type as those found in the Calama district of the Atacaman area, but are decorated with exquisite beauty. Figures of men and jaguars are delicately carved in a naturalistic manner (Fig. 13). Of bone also are a large number of thin slabs of oval, oblong, and figure 8 shapes. These are decorated with groups of small incised circles arranged like the pips of dominoes, save that the total at one end always equals the total at the other. The combined totals for each counter reach the following figures: 6, 8, 10, 12, 14, 18. It is possible that these were used as counters in some game or even for some way of counting (Fig. 5, *g–j*).

The aboriginal population inhabiting the Chilean coast was on a low cultural level. Known as Uros, they were mainly engaged in fishing and hunting. They differed from the Atacamans of Calama in using beautifully worked stone arrow-points, whereas at Calama the arrow-

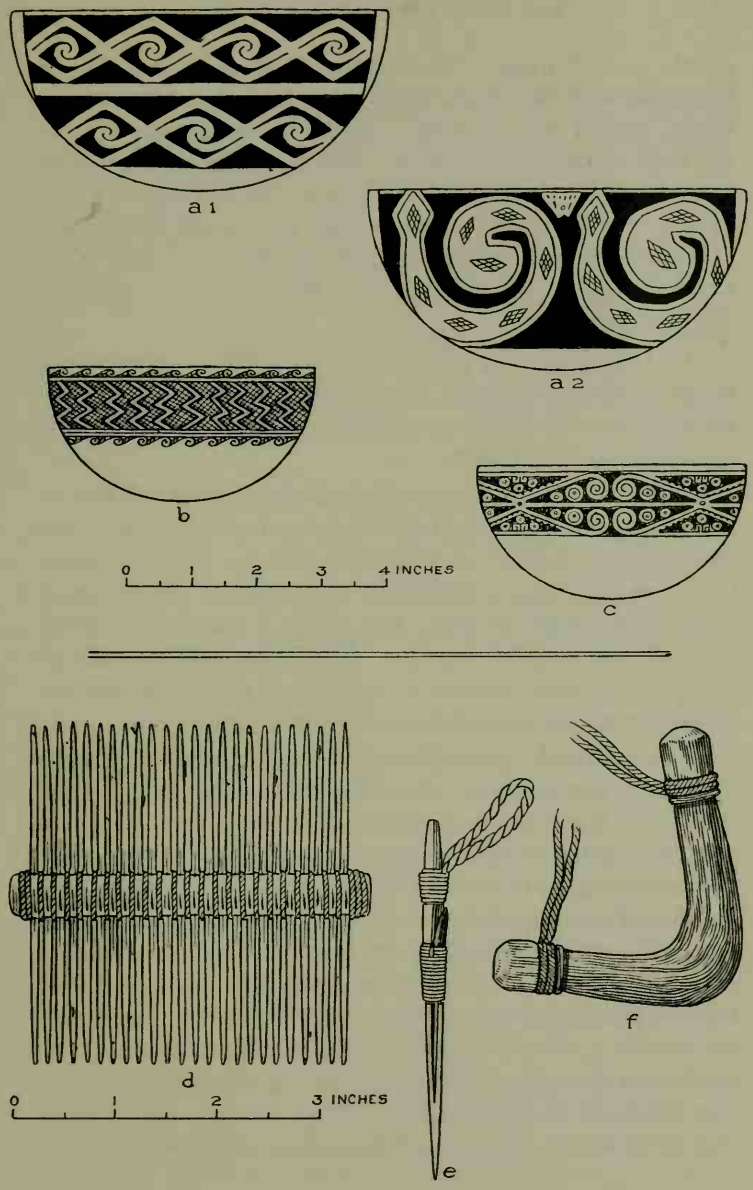

FIG. 14. Gourds and other implements. *a–c*, Gourds decorated with designs in poker work; *d*, Comb of splits; *e*, Fish harpoon of bone; *f*, Cinch hook for llama pack All except *e*, which is from Caldera, and is probably of Uro manufacture, are from Calama and are of Atacaman manufacture (Case 38).

points are of wood. For fishing they used short bone harpoons with two short barbs of copper or a certain hard thorn, placed side by side. These barbs were bound to the bone shaft by thin twine. The points of the harpoons were made by sharpening the end of the bone shaft (Fig. 14, *e*). Similar harpoons were used on the northern coast of Chile, in the Iquique and Arica districts, but there wooden shafts, painted red and with stone arrowheads inserted, are also found.

In Case 37 are to be seen a number of exquisitely made stone arrowheads from Caldera, and one can presume these were of Uro manufacture, possibly traded with the colonists of Caldera.

In addition to the numerous copper or bronze artifacts found at Caldera and probably imported from Peru, are two objects clearly of Peruvian origin. One of these is a small llama excellently constructed from small hammered sheets of gold, the other a small figurine of smoked black-ware pottery. The design is typical of Peruvian coastal culture of the Inca period, while the llama is of a type probably manufactured in the Highlands.

There is little indigenous in Chilean culture, most of it clearly having been imported from Peru and northwestern Argentina, particularly the latter region. It is not improbable that the original inhabitants of the puna district of Jujuy in the northwestern corner of Argentina developed side by side with a pre-Diaguite culture, and that this primitive culture spread over the neighboring Atacaman desert. There are marked differences between the two peoples on the one hand and the ancient Peruvians on the other. The Diaguites and Atacamans, for example, made constant use of the bow and arrow, while this weapon was very rare in ancient Peru. They also appear to have employed bone to a greater extent than the Peruvians.

V. ECUADOR

The cultures of the ancient peoples of Ecuador, like those of Peru, can be divided into two principal groups, corresponding to the highlands of the Andes and the coastal plains. The latter are of considerably greater breadth than those of Peru, and, owing to a much higher rainfall, are more fertile. Instead of the sandy wastes of the Peruvian coast, the northern half of the coastal plains of Ecuador is covered with tropical rain forest and teems with animal and insect life. As one travels south, the climate becomes increasingly drier until in the extreme south the conditions are similar to those of the northern Peruvian coast.

Behind this *tierra caliente* (hot territory) tower the twin ranges of the Andes, penning between their walls well-watered plains and valleys of marked fertility. Owing to the altitude, the flora is subtropical. Thus the cultures of the two areas have, perforce, been molded by their contrasting environments. Between lies an area where the two contrasts merge.

The Highland area, which will be considered first, was inhabited at the time of the arrival of the Spaniards by six important peoples. These, from north to south, were Pastos, Caras, Latacungas, Puruhas, Cañaris, and Paltas. Culturally all these peoples were closely related and had been welded into a political whole, with the exception of the Pastos. The Pastos, whose territory roughly corresponded to the modern province of Carchi in northern Ecuador and the adjacent region of Colombia as far north as Pasto, were reputed to be culturally below the level of their southern neighbors. They were considered to be poor fighters, not over-intelligent or cleanly in their habits, and scarcely worth the trouble of conquering. Part of their territory was subdued by the Caras, and a few years before the arrival of the Spaniards the whole country was subdued by the Incas.

The Paltas in the extreme south were culturally related to their northern neighbors, but there is some grounds for believing that they may have been linguistically related to the Jivaros of the forest region east of the Andes. Indeed, the Palta territory stretched as far as the Amazonian forest.

The Andine peoples, with the exception of the Pastos, already noted, were brought under the suzerainty of the ruler of the Caras, who, according to tradition, came from overseas, landing on the Ecuadorian coast north of Manta. After staying some time in the Esmeraldas district, they advanced inland and established themselves at Quito, amalgamating with the conquered Quitus.

Subsequently the Caras formed a federation with their southern neighbors, the Puruhas, who lived in the vicinity of Riobamba. This was achieved by the marriage of the daughter of the sonless ruler of the Caras to the son of the Puraha paramount chief. On the death of the Cara ruler, or Scyri as he was called, the chieftainship of the two peoples was merged in the son-in-law. This union took place early in the fourteenth century of our era. Subsequently the Cañari and Palta territories were added to the growing empire by a series of alliances, probably based on fear of Inca expansion.

The imperialistic expansions of the Incas and Caras reveal a marked contrast. The Incas conquered and beat into submission the peoples they added to their empire, and consolidated their rule by exchanges of population, rigid control, a uniform code of laws, and a state religion superimposed on those of the conquered peoples. The Caras, on the other hand, extended their empire by alliances, forming a loose federation, the component peoples of which were free to live as they had always lived, retaining their native rulers and paying only a nominal tribute to the Scyri in Quito.

Cara rule was also extended to the coast, and at the time of the first Inca invasions (circa A.D. 1450) their empire confederacy probably covered practically all of

inland Ecuador with the exception of the region east of the Andes and the territory of the Pastos. In the former region the same conditions that had halted the eastern expansion of the Incas also obtained, preventing the effective penetration of the highlanders.

The Cara confederacy, however, was short lived. The great Inca conqueror Tupac Yupanqui (p. 39) invaded and quickly conquered the Palta territory about A.D. 1450. Negotiations between the Inca and the Scyri, an individual of the name of Hualcopo, broke down, whereupon the latter, abandoning the Cañari territory, retreated northwards to the Puruha country. There he was more certain of support from the inhabitants, and at the same time he could count on shorter lines of communication and a superior system of defence works.

After an interval of two years spent in consolidating the newly conquered territory, Tupac Yupanqui again advanced against the Caras, and succeeded in occupying the Puruha territory. Shortly afterwards he returned to Cuzco to report to his father and receive a triumphal welcome. His stay in Cuzco was cut short by news, brought by the famous couriers (p. 54), of a revolt by the Cañaris.

At the fiercely fought battle of Tumipampa the Peruvians were triumphant, thanks to reinforcements thrown into the fray at the critical moment. The Cara and Cañari resistance was at an end, and Quito soon fell into Tupac Yupanqui's hands.

Next year Tupac Yupanqui returned to Tumipampa, where his heir, the future Inca, Huayna Ccapac, was born. Thence he directed his armies to the coast. After conquering the Tumbez and Manta districts, he embarked his army on balsas for certain islands which Sarmiento believed, probably erroneously, to be the Galapagos (p. 39).

At a later date the daughter of the last Scyri, who had been installed by the Peruvians as regent of Quito, was married to Huayna Ccapac, thus definitely uniting the

two empires. Nevertheless, Huayna Ccapac himself was forced to campaign in Ecuador, for the Caras rose in revolt. After subduing the Caras, he reduced the Pastos to submission, but only after a serious defeat had been inflicted on his advance guard.

In view of the short period of Inca domination, the quantities of Inca pottery and artifacts found in the Ecuadorian Highlands is immense. Such finds serve to confirm how thoroughly the Incas knitted together the conquered provinces by exchanges of population and goods. The greater part of these finds of Inca types presumably represent importation, but local copies exist, either made by colonists or by the natives in imitation of those imported. The fact that greater quantities of Inca artifacts are found in Ecuador than in northwestern Argentina or northern Chile points to the greater importance of the former region. Aside from the greater wealth of Ecuador, the Inca Huayna Ccapac was born in Ecuador and his wife was of Caran blood. Indeed Quito may be said to have stood in the same relationship to Cuzco as Constantinople did to Rome a millennium earlier.

Generally speaking, the culture of the Highland peoples of Ecuador was homogeneous and did not differ essentially from that of the Peruvian Andes.

Houses varied considerably in different areas. In the north both the Pastos and Caras built round houses, those of the former being of mud with thatched roofs. The houses of the Cañaris were oblong with mud-plastered walls, while those of the Puruhas were built of stone and roofed with thatch. The Paltas lived in mud houses.

All the tribes were agricultural, growing maize, beans, potatoes, quinoa, oca (*Oxalis tuberosa*), achira (*Canna edulis*), lucuma (*Lucuma obovata*), pacai (*Inga feuillei*), peanuts, pomegranate, cotton, coca, and, in the warmer valleys, tobacco, and chili pepper. Of these the most important were potatoes, quinoa, maize, and beans. Flocks of llamas and vicuñas were also kept for their wool.

Among the Caras only chiefs and persons of importance were allowed to eat their flesh, which was largely reserved for sacrificial purposes. Guinea pigs were probably raised by all the Andine peoples.

Among the Cañaris the women are said to have done the agricultural work, the usual digging implement being a wooden spade with a notched handle. The Puruhas raised large quantities of agave, which they utilized in making a coarse cloth. The Pastos were said to have possessed the custom of eating their own body lice and, furthermore, to have supplied the Inca rulers with the same insect as tribute.

Clothing varied a great deal from tribe to tribe. The garments worn by the Pastos were frequently made of bark-cloth or grasses. Usually the men wore in addition to a loin cloth, a long cloak which was wrapped round the waist and upper part of the body; one end was employed to envelop the head. The women wore a long sack-like garment, which reached from the breast to the knees. The Cara dress resembled the cloak of the Pastos, being wound twice round the body. The Latacungas, who had been profoundly influenced by the Inca conquest, dressed in a manner similar to that of the Quechuas. The Cañaris wore a poncho-like shirt of cotton, llama wool, or agave, which reached practically to the knees. Cara nobles wore a head-dress with two rows of feathers, while that of the warrior group was adorned with a single row. Gold crowns have been found in archaeological excavations from Peru to Colombia, and even in Mexico. The basis is a wide band of gold worn round the crown of the head (Case 14). Those from Ecuador frequently show a head in repoussé on the front and several strips of gold which project upwards from the crown and presumably represent feathers.

The Cañaris wore their long hair tied in a knot. This was, in the case of chiefs, held by a wooden loop ornamented with numerous colored plaits. The common

people made these ornaments from calabashes. Head deformation was practiced among the Paltas.

Little is known about birth ceremonies or childhood among the peoples of the Highlands, except that among the Puruhas boys were named when they were five or six years old. This was the occasion of a peculiar ceremony widespread from Colombia to Argentina. The child was taken round from house to house visiting relatives and friends of the parents. Each individual visited cut a lock of hair from the child's head, until, at the end of the round of visits, no hair was left on his head. The participants in the ceremony gave the child small presents.

A man's name was considered to be a part of his entity, and in some parts it was not pronounced for fear of magic being worked against the owner through the name. Indeed, it was believed that were a woman to pronounce her husband's name, all the household utensils would break.

Commoners among the Highland tribes were monogamous, but chiefs usually possessed more than one wife. Among the Puruhas an interesting method of wooing obtained. At nightfall the young man approached the house of the parents of the girl whom he wished to marry, taking with him a supply of wood, thatch, and chicha drink. These were tokens that he was able to build a house and provide for a wife. Should the parents not be opposed to the marriage, they sent the girl out of doors to the young man. It was part of the ritual that the girl should leave the house weeping and reproaching her parents for thrusting her out of their home. Were the suitor considered unworthy of the girl, he was driven away from the house with blows. Among the Caras, men were free to separate from their wives and remarry, and the same custom probably held good for all the Highland peoples.

Burial customs varied markedly from tribe to tribe. The Cara dead were buried in small oven-like chambers situated in mounds. The body was laid on the ground

together with the personal possessions of the deceased, food, and chicha drink, the size of the mound erected over the chamber varying with the importance of the deceased. A month after the internment certain mourning ceremonies were performed at the place of burial, and these were repeated a year after death.

The important Cara chiefs, however, were buried in a pyramidal structure containing one room, the double entrance of which faced east. This was only opened to admit another body. The corpses, which were said to have been embalmed with resin, were seated in a circle. Above each one was a niche in the wall containing a little statue of stone, metal, or pottery, which represented the deceased. In these statues were placed small stones of various sizes and colors, which indicated the age of the deceased and the number of years he had occupied the position of paramount chief.

In certain parts of Ecuador the deceased, accompanied by his widow and relatives, was carried to his final resting place in a litter. The procession advanced slowly, the mourners chanting lamentations and keeping time with a peculiar dance, in which a few paces were taken in a forward direction and then some backwards.

The rank and file were usually buried in a sitting posture. One end of a long bamboo-like stalk was placed in the dead man's mouth, the other end protruding from the earth above the grave. Down this tube, chicha was poured into the dead man's mouth. In the Chapi district of the Cara territory wakes were held, in the course of which large quantities of chicha were drunk. Fires were lit along the route followed to the grave, while the mourners returned from the burial by a different route. The house of the deceased was abandoned after the furniture had been removed through a breech made in the wall. The object of these practices was clearly to baffle the spirit of the dead man and prevent him from following and molesting the living.

A somewhat similar custom obtained among the Puruhas, for the corpse was removed from the house, subsequently abandoned, by a breech in the wall, but the deceased was sometimes buried under the house. Cañari chiefs below the highest rank were buried seated in a litter, and frequently a favorite wife was slain and buried with the deceased to minister to his wants in the next world. Women wore black paint as a sign of mourning, and toured the places most frequented by the deceased during his lifetime, calling to him and reciting his deeds. The mourning was brought to an end by ceremonially bathing in a certain river. The Cañaris believed that the dead abode on the shores of a certain lake.

Over a great part of the Highlands of Ecuador burials are found in chambers at the bottom of circular shafts, from six to fifteen feet deep. Sometimes a number of small chambers lead off the same shaft (Fig. 15, *a*). It has been conjectured that the skeleton, in a squatting position or on its back, placed in the chamber at the bottom of the shaft, is that of the chief, while the occupants of the other chambers, sometimes placed at different heights, are the wives or attendants of the chief.

Burials in large pottery urns are found in the Angel district on the borders of the Pastos, as well as in parts of the Cara region and on the coast. Occasionally, too, skeletons are found in coffins made of stone slabs, a custom also found in the Cauca Valley of Colombia and sporadically as far north as British Honduras.

Little is known about the beliefs of the Ecuadorian peoples with regard to the creation. Some Cañaris believed that they were descended from a giant serpent which dwelt in a lake, while others considered their ancestor to be a certain mountain.

A curious legend was current in Cañari territory, according to which there was a flood from which only two young men escaped by taking refuge on the summit of a mountain. Here they built themselves a small hut.

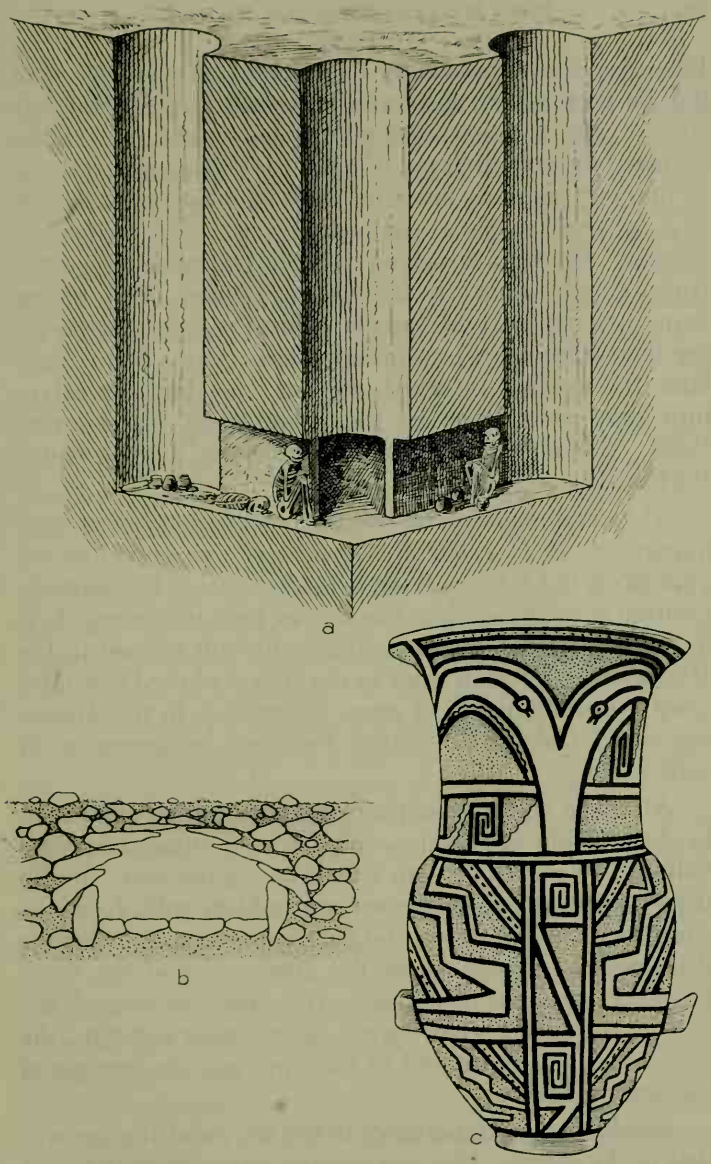

FIG. 15. Burial customs. *a*, Multiple burial shaft found near El Angel, Ecuador (after Verneau and Rivet); *b*, Diaguite burial vault, northwest Argentina (after Ambrosetti); *c*, Diaguite burial urn of the type used for holding the remains of children (Case 39).

Each day they would sally forth in search of food. One day on their return they were surprised to find their hut stocked with an abundance of food and chicha. The same occurred for several days. Finally the young men, curious to find out who was bringing these supplies, made a hole in a darkened corner of the hut, in which one of them hid himself. Shortly afterwards two macaws entering the hut transformed themselves into young women. The young man came out of his hiding place, but the girls, transforming themselves back into macaws, flew away. Three days later the macaws returned and, on changing themselves into girls, were seized by the young men, who married them. From these four, the legend relates, are descended the Cañaris.

The worship of the sun and the moon was of paramount importance in Ecuador at the time of the arrival of the Spaniards, but it is not known to what extent the supreme position of solar worship was due to Inca influence. It is more than probable that a strong sun cult existed in the Highlands of Ecuador prior to the arrival of the Peruvians, since sun worship was of great importance in the Andine regions of Colombia, whither Peruvian influences never penetrated.

At Quito there existed an elaborate temple dedicated to the worship of the sun. This was a square structure built of well-cut stone with a door facing the east. Inside there was an image of the sun wrought in gold, to which offerings of resins, fruits, and llamas were made. Outside there were two columns for the observation of the equinoxes, or, possibly, to indicate when the sun was at the zenith. In addition there were twelve other columns, the shadows of which are said to have marked the passage of the lunar months.

Second only in importance to the temple of the sun was that of the moon. This was a round structure with round windows. Inside was a silver image of the moon placed on a blue cloth, bespangled with silver stars, representing

the sky. A feast was held in honor of the moon on the first day of each lunar month. This worship resembles that of the Incas very closely, as already noted.

The Cañaris, like other Andine peoples, also worshipped the sky, trees, rocks, and rivers, the last particularly at the junctions of streams. Among the Puruhas the rainbow was considered of great ill-omen. Actually the Puruhas considered themselves to be the descendants of children resulting from the union of two mountains near Riobamba. To these mountains were sacrificed virgin daughters of chiefs as well as llamas.

Thunderbolts were thought to be sent as punishments for sin, and should one fall on a house the inmates were forced to atone for their sins by a long fast, during which they were forbidden to eat salt or chili pepper.

The Cañaris, like many Andine peoples, sacrificed children to obtain good crops. Each year before the harvest one hundred children were sacrificed at the entrance to a cave on the summit of Curitaqui Mountain. Verneau and Rivet report that the modern Indians believe that this cave is the dwelling place of an individual called Mamahuaca, who carries a golden ear of corn in her hand, and, in return for the sacrifice of a first-born child, will give abundant harvests. The custom of sacrificing children to obtain good crops obtained from Argentina to Mexico.

Throughout this region the potato crop was of very great importance. In order that the crop might not be lost, the Puruha men never entered the fields in which the potatoes were flowering without first beating their feet with nettles. Another ceremony was held when the ears of maize were beginning to form. A man, dressed as a warrior and armed with spear, traveled from one hilltop to another with gestures of defiance to an imaginary enemy. On his return he informed his neighbors that danger no longer threatened. Thereupon a drinking orgy was held, in which every kind of excess prevailed.

On the whole the Highland peoples seem to have been of a warlike disposition, particularly the Caras. These built imposing fortresses to defend the valleys leading into their territory. These fortifications resembled somewhat pyramidal structures for they were square in shape and consisted of two tiers. In the center was a building in which the arms and supplies of the garrison were kept. The Caras used spears and spear-throwers, slings, heavy wooden swords, and, in all probability, stone-headed clubs. The weapons of the other Highland tribes must have been of the same nature. The Cañaris possessed large war drums made out of a single log with handles at both ends for suspension. These drums or gongs were as much as seven feet long, and must have resembled the gongs of hollowed tree trunks still used in parts of the Amazon Valley.

In art the natives of the Ecuadorian Highlands were far behind their Peruvian neighbors. Stone sculpture is rather rare throughout this region, and where it occurs is executed in a crude style. Many of the copper and bronze implements are of the same shapes as those used by the Peruvians, but there are a certain number of local styles. Frequently Ecuadorian breastplates are decorated with embossed heads, and generally speaking there is more decoration of metal objects.

The pottery of the Highlands of Ecuador is far below the better work of the Highlands of Peru, polychrome pottery, with the exception of the dull colors of negative painted vessels, being rare. The Ecuadorian archaeologist, Doctor Jijon y Caamano, has evolved a chronological scheme for the pottery of the Province of Chimborazo, which at the time of the Spanish conquest was occupied by the Puruhas. This sequence is based partly on stratigraphy, partly on stylistic evidence. The earliest period is distinguished by tripod bowls and cups with expanding feet, the decoration of which is confined to simple incised patterns. The tall jars decorated in negative painting

and the plain bowls with three long legs (Case 18) appear to be contemporaneous with his Elen-Pata period, which, in turn, would seem to antedate the Inca conquest by a very short period. The style is reminiscent of the cursive pottery of Middle Chimu (p. 26), and in the use of the double reversed spiral is linked with Late pottery from all over Peru. A frequent feature of the true Elen-Pata period, which seems to have coincided with the rise of the Puruhas, is the presence of small heads on the edges of bowls. These are in relief, facing inwards towards the bowl, which appears to represent the body of a man resting on his back. This motif is very common in Diaguite pottery (p. 79). It is also found in Colombia, where the heads are generally more conventionalized, and occurs sporadically in Central America, eastern South America, as in the Marajo region, and in the West Indies. It is a trait which has obviously been diffused from a common center, probably in the Andes. A very naturalistic example is given in Figure 16.

The Tuncahuan period, which is earlier in date than Elen-Pata, is linked more to Colombia, showing, like the earliest periods, no Peruvian influences. The most common product is a bowl on a high stand, a shape that extends into Central America. Some writers have found Maya and other Central American influences in the Ecuadorian Highlands, but it would seem more probable that the current in early times had been mainly in the opposite direction, Central American ceramics having been influenced from South America (p. 16).

Accounts of the history and customs of the peoples of the coast are much less detailed than those of the peoples of the Highlands. Such knowledge as we possess of the coastal peoples can be found in the works of Saville, on which this short account is very largely based.

That part of the coast which stretches from a little south of the equator as far as Guayaquil was inhabited by a large number of different tribes speaking different

languages, but possessing a common culture which was essentially the same throughout the territory, although with many important local differences. The culture can be termed that of Manabi, since it occupies all of that province except the section north of the equator, but it also includes the section of the Province of Guyas from Guayaquil northwards.

The north of Manabi and the coastal sections of Esmeraldas are little known archaeologically. Here existed both high and low cultures, the former comparable to that of Manabi, the latter represented by non-agricultural peoples, and others possessing agriculture, but on a low cultural plane similar to that of the modern Cayapas of northern Ecuador.

In the Manabi area the natives, for the most part, lived in houses made of wood and thatched with straw. On the summits of the hills between Puerto Viejo and Manta in the center of the Manabi area are found the remains of many buildings. The rooms can be traced by the remains of the low walls, which are often made of double lines of stone slabs, the space between being filled with rougher stones and earth. Presumably wooden poles were set in these low walls to support straw roofs, or possibly the walls may have been of adobe, since Saville reports one room with walls of earth. One building which he measured close to Manta was 190 feet long, some thirty-eight feet wide, and had side walls four and a half feet thick. Some of these buildings have as many as seven rooms. House refuse, such as broken corn-grinders, potsherds, spindle whorls and hammer stones, suggest that these buildings were mainly used as dwellings, although many of them contained sculptured stone seats (p. 112), slabs, and figures in the round. The sides of hills are in some places terraced to support these buildings.

On the other hand the natives of Passua, who lived close to the equator, are reported to have lived in hollow

trees. They were on a very low cultural level, not practicing agriculture but living by fishing and hunting.

The plants cultivated by the coastal peoples differed little from those of the coast of northern Peru or those of Colombia. Maize, beans, and manioc were the three principal crops. Cotton, henequen, peanuts, sweet potatoes, and chili pepper were also of considerable importance, and the fruit trees included the guanabano, aguacate, guayaba, pomegranate, and zapote. It is possible that the curassow was domesticated, and the guinea pig was almost certainly bred in captivity.

A type of balsa (p. 54) and dugout canoes were used for fishing. This balsa, known as jangada, was a raft made of an odd number of poles of balsa wood arranged with the longest in the middle and the others shorter, so that, placed with the stern ends in line, they formed at the bow a kind of spear with the point formed by the longest in the center. These poles were bound together with henequen ropes. Sails were attached to a mast on a wooden platform amidships, and paddles were also employed. The largest were said to have been capable of carrying fifty men. A peculiar feature of these craft was that steering was done by means of a centerboard, no rudder being employed.

In the Manabi region men and women wore mantles and poncho-like shirts made of cotton, although llama wool, imported from the Highlands, was also sometimes employed. In some parts only a loin cloth was worn, while the natives of Passua, to whom reference has already been made, wore only loin cloths of bark-cloth.

Ornaments of various types were worn by the peoples of Manabi culture. These included armlets and leg-bands of gold, silver, or shell, ear-plugs, and nose-plugs. The cotton garments were presumably woven on looms similar to those used in Peru (p. 60). The natives of the island of Puna made needles from the thorns of a certain kind of thistle that grew on their island. The Caraquis, who

presumably lived near the modern city of Caraquez, and other peoples of this region deformed their heads, and further accentuated the resulting broadness of the head by leaving the hair at the sides of the head long and standing out, while the crown of the head was shaved.

The natives of the Manabi area, except those in the extreme south, had a painted or possibly tattooed mark on their faces, extending from the base of the ear to the chin.

The natives of the island of Puna, who were great fighters, made use of slings, spears propelled by spear-throwers, and bronze star-clubs and axes. The bronze clubs were very probably introduced from Peru. All along the coastal foothills of the Manabi area obsidian arrowheads and knives are found in large quantities, the native term for obsidian being the poetical "silver of the dead." Stone weapons of war are rarely found in the coastal regions, suggesting that the principal weapons were slings and spears pointed with hard wood or bone.

Of the social life of the Indians of the coastal region very little is known. It is reported that children were named after the day on which they were born. This information, besides indicating the existence of a well-developed calender, also supplies a remarkable parallel to the custom in Mexico and Central America. Around Puerto Viejo relations and friends preceded the groom in access to the bride.

Chiefs were buried in burial shafts of considerable depth, resembling wells. The interment was accompanied by singing, dancing, and the drinking of chicha. Food and the arms and ornaments of the deceased were placed in the shaft, and canes filled with chicha were placed on top. Sometimes one of the wives of the deceased was buried alive in the tomb to accompany her master to the next world. The same custom of burying a wife in her husband's tomb obtained on the island of Puna, and here the female mourners shaved the hair from their heads.

In some parts of the coast an attempt was made to embalm the corpses of chiefs with the aid of a resin distilled from the bark of a certain tree, which also supplied an incense used in religious ceremonies.

The burial practices of the coastal peoples clearly show that they believed in an existence after death, but apart from this very little is known about their religious beliefs. The most important temple was situated in Manta, about in the center of the Manabi coast. We are told that the doorway faced the east and was covered with a cotton curtain. Inside were two images like black goats. There were also figures of serpents and large fish, the latter pertaining to the special cult of the fishermen. The Indians of Manta worshipped a great emerald, which was known as Umina. Hither came Indians from all parts to make offerings, particularly of small emeralds, to the great emerald. It was believed that the great emerald had powers of healing.

Children, women, and prisoners of war were sacrificed in different parts of the coast, and their bodies, filled with ashes, were suspended in the temples or such places as served for feasts or dances. One early writer speaks of small shrunken heads in the temples, suggesting that the head-shrinking custom, made famous by the Jivaros of eastern Ecuador, was also in vogue on the coast. On the island of Puna prisoners were also sacrificed, and their bodies opened up.

Many sculptured stone slabs, which undoubtedly possess a religious significance, have been found by Saville. The level of art is very much higher than anything found in the Highlands. Female figures and a monster with a lizard-like body and tentacles like those of the octopus form the subject matter in almost all cases. The latter type is somewhat reminiscent of one aspect of the monster in Transitional Early Nazca (p. 22). Human figures in the round, however, are of a somewhat crude nature.

Perhaps the most interesting feature of coastal art is the stone seats, of which two examples may be seen in the center of Hall 9. The rounded seat without back usually stands on the crouching body of a large puma or a human body. The eastern stone seat in Hall 9 is unique in that the chair is supported by a perfectly plain pedestal. These seats are found in a quite small area, and their purpose is unknown. Many of them have been retrieved from house sites, suggesting that their use was not necessarily religious.

The pottery of the Manabi area is, like that of the Highlands, of little artistic value. The negative painting technique does not appear to have been employed. The pottery spindle whorls, on the other hand, show marked skill on the part of their makers. One type with bird designs recalls Peruvian coastal motifs, while another group seems to have affinities rather with Colombia. Pottery figurines are commonly found as well as pottery figurine whistles (Case 18).

Nearly twenty miles off the coast of Manabi lies the island of La Plata, where in former days existed a shrine to which pilgrimages were made from many parts of the coast. Part of the material collected by a Field Museum expedition on this island nearly forty years ago may be seen in Case 17. Of striking interest are the well-made pottery figurines, most of which were recovered in a fragmentary condition from refuse heaps on the island. These figurines show many details of dress such as earplugs, lunar nose ornaments, close-fitting caps, and iguano head-dresses; they also show that artificial head deformation was practiced. According to Saville the pottery figurines appear to resemble those found in the northern coastal area of Ecuador rather than those of the area opposite the island. They were probably left by pilgrims visiting the holy island.

A peculiar feature of the island is the occurrence of many rectangular and disk-shaped engraved stones. These are made of a volcanic tuff and in many cases are engraved

on one face with designs which usually consist of a Saint Andrew's cross and a series of small circles, either inside or outside of the lines of the cross. In addition, oblong stones are found decorated with circles. These are perforated longitudinally as though to be worn as beads. The purpose which these engraved stones served is not known, although it has been conjectured that they might have served as counters in some game.

A grave was also found on the island, which contained some gold and silver figures (Case 17). The pottery that accompanied this burial clearly indicated that it dated from the Inca period, some of the vessels actually being of Inca manufacture, while others were local copies of Inca shapes. With this burial was found a huge stone ax, which could have served no utilitarian purpose (Case 17).

The cultures of Ecuador are of intense interest to the archaeologist, for they show a mingling of influences that unite them on the one hand to Colombia, on the other hand to Peru. Probably the Colombian connections for the most part antedate Peruvian influences, both of the Early Andine and the Late Inca periods. Nevertheless the greater part of Ecuador is still, archaeologically speaking, an unknown land.

VI. COLOMBIA

Less is known about the archaeology of Colombia than that of any center of high aboriginal culture in the New World. Very little scientific archaeology has been attempted in this part of South America despite the mass of material that is known to be awaiting the excavator's spade. For enormous areas of Colombia there exist neither the accounts of eyewitnesses nor archaeological evidence.

At the present time six main centers of culture are recognized. The best known of these is that of the Tairona, occupying the Santa Marta District of the Department of Magdalena. The discovery of this culture was made by J. Alden Mason in 1922 at the head of the Marshall Field Archaeological Expedition of Field Museum to Colombia.

The remaining cultural centers are found in the mountainous regions bordering the Cauca and Magdalena valleys. In what is now the Department of Antioquia flourished the Tamahis, who had attained a fairly high level of culture. South of them were the Quimbayas, who occupied the region around Cartago in the Department of Valle and adjacent areas of the departments of Caldas and western Tolima. This area bounds the Cauca Valley. Around the head-waters of the Cauca River were settled the Coconuco, about whom very little is known.

The uplands bordering the parallel valley of the Magdalena River were the center of the remaining two cultures. The Chibchas, of whom more is known from historical sources than of any other people of ancient Colombia, occupied the plateau country of the eastern branch of the Cordillera, with their principal center close to the modern city of Bogotá. Their territory formed an ellipse, the northernmost extension of which reached to the center of the Department of Santander. Except for the Magdalena Valley and the central Cordillera, the Chibcha linguistic group stretched northwestwards as far as where the

Panama Canal now links the Pacific and Atlantic oceans. Actually this northwest linguistic extension of the Chibchas was not politically associated with the eastern group.

Finally, near the headwaters of the Magdalena River are found the remarkable ruins of San Agustin with their peculiar stone carvings unlike anything else so far reported from Colombia. It is possible that the ancient inhabitants of San Agustin were immigrants from the Highlands of Ecuador. There are some grounds for believing that a broad strip of territory, stretching from Ecuador up the Magdalena Valley and dividing the Chibchas from the Quimbayas, was occupied by the same linguistic group. The territory of the Coconucos falls within this linguistic area. San Agustin lies just outside its known limits, but it is quite possible that the original builders of the ruins were of this same linguistic stock, to which the name Barbacoa has been given. Both the Quimbayas and Taironas were of separate linguistic stocks. The affiliations of the Tamahi tongue are unknown.

It would appear that the Chibcha linguistic stock once occupied the whole territory between Bogotá and Panama. There are indications that the Barbacoan tribes of the Magdalena Valley drove out the Chibchas, for the Chibchas considered two hills in Barbacoan territory especially sacred, and made secret pilgrimages there, avoiding the hostile inhabitants. This strongly suggests that Chibcha territory once included these hills, and that subsequently the land had been captured from them by tribes of the Barbacoan linguistic stock.

The Chibcha territory, largely confined to the plateau country of an average height of 7,000 feet above sea level, was divided into five provinces, of which the two southernmost were of greatest importance. These were Tunja in the center of Chibcha territory, ruled by an individual bearing the title of Zaqui; and Bogotá (corrupted from Bacatá) in the south under the suzerainty of a ruler called the Zipa. Bogotá, rising from an insignificant tributary

province, appears to have been well on the way to consolidating all Chibcha territory under its rulership, but Tunja was the obstacle in the path to the Bogotán hegemony of the Chibcha people. Nevertheless, this process was far from completed. The rulers of the five provinces appear from the early Spanish accounts to have been absolute monarchs, in this respect resembling more the Incas of Peru than the Aztec chief rulers. They were said to have had all civil and military matters in their hands, but one doubts if their power was so unrestricted.

Anyone approaching the Zipa was forced to lower his head and were the individual of low rank, he was obliged to turn his back on his ruler. It is even related that when the Zipa wished to expectorate, a person of rank knelt before him, and, with averted face, held out a cloth, for the ruler's saliva must not touch the ground. It was considered an honor to be selected to hold the cloth. This custom may have had its origin in the common belief that sorcery could be practiced on a person by anyone possessing a sample of his hair, nail-parings, or saliva. Thus this ceremony may have been performed to show the Zipa's confidence in the loyalty and integrity of the individual chosen.

No messenger or chief might appear before the Zipa without a gift, the costliness of which varied with the importance of the business to be transacted. When he traveled abroad, the Zipa was carried in a wooden litter ornamented with gold plates, and Indians went in front of him removing stones and lumps of earth and placing cloths and flowers on the path. The right to use a litter was confined to a few individuals designated by the Zipa.

Chibchan chieftains lived in houses which were merely elaborations of the simple straw-roofed huts with pole walls, of the common people. The palaces of chieftains were placed in compounds formed of bamboo fences some ten or twelve feet in height. At each corner of the compound and at various intervals along the walls were set

high posts used in human sacrifice (p. 132). The floors of the rooms were covered with feather-grass. The ability to plaster and cover walls with a lime wash or stucco would not appear to have been achieved by the Chibchas. One of the Zipa's residences had a verandah some fifteen feet wide running along the inner walls of the compound. This was shaded by a thick and coarse waterproof cloth. The walls of the rooms were decorated with reeds held in place with vari-colored threads, while other huts served as storehouses for arms and agricultural produce.

A chief of importance possessed many wives, but there was a chief wife whose power in domestic matters was paramount. She had the privilege of fixing the period her husband must mourn following her death. During this period, which could not exceed five years, the chief was required to remain continent. It is related that when a chief's wife fell ill and appeared unlikely to recover, the chief did all he could by presents and arguments to persuade her to cut short this period of mourning. One Spanish chronicler reports that the wives of a chief might whip him for some fault, but that the number of blows was limited to six, however serious the crime might have been.

A chief was succeeded by his sister's eldest son, but, if the early accounts are to be trusted, the deceased's sons inherited his personal property, including his wives. The sole exception to this succession in the female line was the chief of Iraca, who was elected. Each Zipa, before the death of his uncle, was the ruler of the district of Chia, and on succeeding to the rulership of Bogotá, his sister's son in turn became ruler of Chia.

Prior to assuming the post of ruler, the candidate was forced to undergo a lengthy novitiate. He was shut up in a temple from which he was allowed to sally forth only at night. This confinement lasted from five to seven years according to the importance of the post he was to assume. He was continent during the whole of this period, abstain-

ing from meat, salt, and chili pepper, and at fixed intervals he underwent severe scourgings.

During this period of initiation the future ruler received instructions in his future work and morals from two dominies. At the conclusion of the initiation period, the candidate's ears and nose were pierced for the insertion of gold ornaments (Case 14), and an offering of gold figurines was made to the gods. The ceremonies concluded with a great banquet, the guests arriving with presents of cotton cloaks, gold ornaments, arms, and other objects.

Actually all persons underwent confinement on reaching puberty, although those of the rank and file were only shut up fifteen days. Similar initiation ceremonies are widespread over South America.

Festivities in connection with the inductions of vassal chiefs of Bogotá lasted two weeks. On the last day a chief was decked in his most valuable gold, emerald, and other ornaments. He was dressed in the priest cloth and a staff was placed in his hands. The ceremony concluded with a general race to the nearest stream into which gold objects were thrown as an offering to certain deities.

It was also necessary for the vassal chief to present himself with every manner of rich gift before the Zipa to receive confirmation in his office. In the event of a chief possessing no nephew, he was succeeded by a younger brother.

Certain warriors, known as *guechas*, formed a privileged class in Bogotá. They were recruited from the strongest and bravest individuals in the land, dexterity in warfare being also a prime requirement. They were sent to the western frontier to defend the country from the incursions of the Panches, a Barbacoa-speaking tribe, who were a perpetual thorn in the side of the Zipa, since they were constantly invading his territory in search of prisoners to eat.

Frequently a *guecha* was picked as chief of a district where the previous ruling family had become extinct.

The *guechas* possessed the privilege of wearing their hair short and wearing short golden rods in their lips and ears, the number of these being governed by the number of the enemies slain in battle by the wearer.

The common people were agriculturalists, raising large crops on the fertile Chibcha plateau land. Maize, sweet potatoes, sweet manioc, peppers, cotton, beans, squashes, and tomatoes were among the plants cultivated on a large scale. A peculiar root, *Tropaeolum tuberosum*, a plant related to the nasturtium, served as the basis for a kind of bread, the taste of which was said to resemble that of turnip. Quinoa, a small-seeded plant much cultivated by the ancient Peruvians, was grown on a large scale, but has now fallen into disuse.

Tobacco was grown for smoking, and coca for the leaves which were roasted and chewed with lime, as in the Peruvian Andes. Many fruits were cultivated, such as the alligator pear, pineapple, cactus, guava, various anonas, and the pacai (p. 98).

Such a wide range of plants was possible since the climate varied from the coldness of the plateau country to the tropical heat of the lower slopes of the Cordillera. There were no elaborate agricultural implements, a wooden digging-stick serving most purposes. Among the Indians of the Santa Marta coast it was the custom for men to help each other in agricultural work, the man whose land was being worked supplying liberal quantities of chicha and giving a dance in the evening on the conclusion of the work. In this same area a fermented drink was made from masticated yucca as is the custom to this day in many parts of the Amazon Valley.

In the Santa Marta region the Taironas kept small dogs of a breed that did not bark, similar to those found by the Spaniards in the West Indies and Central America. In other areas dogs were bred for eating purposes. On the borders of the Chibcha country there existed several tribes, the members of which raised ants for eating. The

ants, which were of three or four kinds, both large and small, were raised, and probably bred, in specially constructed enclosures. They were ground on special stones and, mixed with maize or fruit, were made into dough and cakes. This dish was the main sustenance of this people.

In the Santa Marta region, bee-keeping was an important industry, perhaps having been introduced from Central America, where apiculture was widespread. One of the Spanish soldiers reported more than 80,000 hives in one valley, although this number is undoubtedly an exaggeration. The man stated that each house had ten or more hives in it. The bees were of a very small breed, but the honey was extremely sweet.

Apart from dogs and insects, it is very probable that the guinea pig was bred in Colombia as in Peru. At least it was extremely abundant. Oviedo speaks of the Indians bringing as many as a thousand to the Spaniards in one day. Such quantities strongly suggest that the domesticated cavy had reached Colombia from Ecuador or Peru. Rabbits, too, were extremely abundant.

The Chibchas prepared large quantities of salt, part of which was bartered to neighboring tribes. Salt water was evaporated in large pottery urns until the vase was filled with salt. These vessels were then broken to remove the contents, which, after evaporation, had solidified into rock-like cakes.

An industry of considerable importance was the mining of emeralds. The finest emeralds were found in the territory of the Muzos, a tribe which was hostile to the Chibchas. However, there were emerald fields in the territory of Somindoco, a minor Chibcha district, whence the Chibchas obtained their supplies. The natives of Somindoco permitted no one but themselves to dig them out. Indeed, it was believed that were a stranger to occupy himself in this work, he would die within a moon. The workers took certain herbs which, apparently, caused a vision,

since by taking them it was possible to divine where good "pay lode" might be found.

When a marl emerald-bearing vein was struck, it was excavated by means of sharp-pointed sticks of a hard wood. Deep ditches were dug so that the water washed away the marl, and for this reason mining operations were confined to the rainy season. The emeralds were exchanged for cotton mantles, gold, and other products. The gold used by the Chibchas was obtained from neighboring tribes by barter.

The birth of a child among the Chibchas was attended with little ceremony, the mother usually retiring to some spot near a stream, where she washed the child immediately after its birth. The birth of twins was considered a sign that the mother had committed adultery, and the second born was put to death. The Muzos, to the west of the Chibchas, placed their children in rush cradles which were stood upside down against a wall, as it was believed that this treatment would give them strong, round heads. Actually, head-deformation was practiced in other parts of Colombia. In the Colima district the heads of newly born children were placed between two boards, one over the forehead, the other at the back of the head; pressure caused the necessary flattening. The Panches and Quimbayas are also reported by early writers to have deformed the heads of their children. The Chibchas also, to judge from their figurines, must have practiced head-deformations, although there appears to be no literary record of this.

At the weaning of a child, a peculiar rite was practiced to ascertain if the child would have a happy or unhappy life. A little cotton, steeped in the mother's milk, was rolled up in rushes, and thrown into the river. Immediately six good swimmers swam after it as fast as they could. Should they not succeed in reaching the bundle before it keeled over, it was believed that the child would be unlucky and would have an unhappy life. Were the

contrary to happen, everyone was very pleased, since this augured happiness for the infant. In the latter case, a feast was held at the house of the parents. Each guest approached the child, who was seated on a cloak, and with stone or bamboo knife cut off a lock of its hair. When all the hair had been removed from its head, the whole party adjourned to the river, where the hair was cast into the water and the child washed (p. 100).

Girls, on reaching puberty, were made to sit six days in a corner enveloped in a cloth which covered their heads. At the conclusion of the six days they were taken between two files of men to the river, where they were washed. The ceremony concluded with the drinking of large quantities of chicha (fermented maize). Boys were similarly enclosed at puberty as described above.

Among the Indians of the Santa Marta coast a newly born child was named from the first bird or animal heard after its birth.

Among the Guan branch of the Chibchas the future of children was forecast in a peculiar manner. Apparently they believed in the old adage, *In vino veritas*, for they purposely made the children drunk at a ceremony held when they were eleven or twelve years old. Bows and arrows and agricultural implements were placed close at hand. Should the boy, while under the influence of liquor, pick these up, it was believed that he would become a good hunter and a good farmer. Similarly, stones for grinding maize and spindles were placed in the room where a girl was being put to the proof; should she grasp these, her future as a good housewife was assured.

In the same way slaves were tested by being made to drink. Should one make for the door while under the influence of alcohol, it was considered that he would be a poor slave, since he would always be trying to escape. In this same area children were punished by rubbing pepper in their eyes, while in the Velez district the punish-

ment was a little less severe, since the eyes were washed with water in which chili had been steeped.

From an early age children were made to help in farm work, working in the fields and carrying loads of produce.

Marriage presumably took place at an early age. There is no definite information on the effects of relationship on marriage. Among the subjects of the Zipa, a man was forbidden to marry a girl who was, to quote the vague phrase, as near as the second degree of consanguinity. There is no evidence of any system of cross-cousin marriage or exogamy among the more highly cultured peoples of Colombia, although the Panches practiced a form of exogamy, since the wife could not be of the same sib as the husband. Actually there is no evidence of a sib organization among the Chibchas or other cultured Colombian peoples. Prior to marriage the consent of the girl's parents or guardian (maternal uncle?) was sought, a present being offered them. If the present and the youth's capacity for work met with the approval of the parents of the girl, a feast was held to celebrate the union. The bride supplied twenty vases of chicha to be consumed during the festivities, but there appears to have been no actual ceremony. According to one seventeenth century writer (Piedrahita) the husband had the right of returning the bride to her parents within a few days should she prove unfit for her duties.

In certain districts the suitor sent a cloak to the girl's parents or guardian. If it were not returned by them, the young man sent another cloak and a load of maize and in addition half a deer, if the recipient belonged to the class entitled to eat venison. At dawn next day the young man seated himself outside the door of the hut where the girl slept, making just sufficient noise to let the inmates know that he was there. Thereupon the girl's father called out to know who was outside, adding that he had no creditors to bother him, nor was he expecting visitors. The young man did not reply. After a while

the girl came out of the hut with a large jar of chicha. After taking a drink, she handed it to him, and he, in turn, drank as much of it as he could. This constituted the marriage ceremony (cf. p. 100). In the area lying between Darien and Cartagena the young man presented the girl with a woven hammock of cotton, and she gave him two in return.

Chiefs and other persons of importance had more than one wife, the number of concubines varying with the individual's ability to maintain them. Among the Aurohuacos of the Sierra Nevada of Santa Marta the husband and wife occupied separate huts. The wife would place her husband's food on a stone halfway between the two huts, while the husband came to fetch it after she had returned. Intercourse did not take place at night, for it was believed that a child conceived in darkness would be born blind. Under no circumstances would the man go into the wife's hut or vice versa, and only while at their agricultural work in the fields did they cease to avoid each other.

Among the Chibchas it was customary on the accession of a chief for certain priests to seek out a hidden spot in which to construct a grave to receive the body of the chief on his death. No one knew of the locality, not even the chief himself. The spot was chosen so that after the burial some stream could be diverted to flow over the grave, and so prevent its desecration by robbers.

The intestines were removed from the body of a dead chief and the body treated with a resinous substance. The people mourned his passing, recounting his adventures, glories, and goodness. Red cloaks were donned and bodies painted red with annatto, and sometimes even the hair of the mourners was thus treated. Much chicha was drunk, the quantity varying with the importance of the deceased. At the end of a certain period, which again varied with the importance of the dead chief, the body, clad in rich clothing and adorned with jewelry, was secretly buried by the

priests, who had made the grave. Close to the body were placed jars of chicha and food. The whole was covered with earth in which three or four of the favorite concubines of the dead chief were buried alive. Above, in another layer of earth, were buried certain of his slaves. Before being buried alive, the women and slaves were given large quantities of tobacco and leaves of the crazy plant mixed with chicha. This crazy plant (*Datura sanguinea*), known to the Indians as *tyhyquy*, had the effect of making the person who ate it drunk or temporarily mad. Cases were reported where Indian women, seized by the Spaniards, retaliated by placing leaves of the bush in the food of their captors.

In the Bogotá region the corpses of important chiefs were seated on golden stools. The body of a dead Zipa was placed in a hollow tree-trunk covered, inside and out, with gold plates. The whole was subsequently thrown into a large lake, probably Lake Guatabita. In another district of the Chibcha country, after the intestines had been removed, the corpses of persons of rank were desiccated on a barbecue over a low fire. Subsequently, the stomach was filled with gold and emeralds, and the corpse, wound in rich cotton cloths, was seated on a kind of high bed situated in a corner of one of their shrines. Occasionally the bones of chiefs were placed in gold urns.

Early in the seventeenth century a cave containing more than 150 mummified bodies was uncovered. The corpses were seated in a circle, in the center of which was a mummy, presumably that of some chief, with strings of beads around the neck and wrists and a turban-like head-dress. The bodies of commoners were usually interred. In the Tairona area, secondary burial in urns seems to have been the common practice.

Among the Aurohuacos it was considered no disgrace to commit suicide. A sick person with little hope of recovery seated himself on a stone, and, placing a noose round his neck, tied the ends to his feet so that on stretch-

ing out his legs the noose contracted and he strangled himself. Should the sick person lack the strength to strangle himself, he was buried alive. It was believed that persons who died in this way, and possibly all the dead, went to live with the sun, accompanying him on his journey across the sky.

The Chibchas believed that the spirits of the dead journeyed to an underworld by roads of black and yellow earth, after first crossing a broad river in boats constructed of spiders' webs. Lest these should become scarce, the Chibchas never killed spiders. This belief suggests that the souls of the departed were non-material. In the underworld the dead continued to live as they had lived in this world, the chiefs still reigning as chiefs, the agricultural workers continuing as farmers.

Mourning continued for six days following burial. Large quantities of chicha were consumed and coca chewed while the good actions of the deceased were recited. Similar ceremonies were held at fixed intervals for several years. Among the Aurohuacos a widower was forced to abstain from chewing coca for twenty days following his wife's death. During this period he was not even allowed to touch the gourd in which the lime mixed with the coca leaves was kept. Among the Catios of Antioquia the oldest slave inherited the property of the deceased and married his widow, but among most peoples the deceased's sister's son inherited.

The Chibchas believed in a creator known as Chiminigagua, but paid little attention to him, no doubt believing, like many other primitive peoples, that the creator was too far removed from the everyday affairs of the world to interfere in their daily life. The Chibchas likewise shared with many other peoples of the New World such as the Aztecs, Mayas, and Peruvians a belief that the world was first in darkness. This darkness was dissipated when the creator sent over the earth some large black birds which breathed light through their beaks. Later

the sun and the moon were created, the latter being the sun's wife.

The inhabitants of Tunja believed that when the world was still in darkness there existed the chief of Iraca and his nephew, the chief of Ramiriqui. They made men of yellow clay and women of hollow-stemmed reeds; then, since the world was still dark, the Iraca chief ordered his nephew to ascend into the sky and convert himself into the sun. Later the Iraca chief himself became the moon.

According to another legend the world was populated in a different manner. A woman called Bachue appeared out of a lake, bringing with her a three year old boy. Later, when the child had reached manhood, the world was populated by the descendants of this couple, Bachue bearing four or six children at a time. After many years, during which they instructed their children in good government, Bachue and her husband returned to the lake from which they had emerged, and, entering it, were converted into snakes.

The sun was the center of an important cult, and to him people were sacrificed, since the human flesh was said to be his sustenance. This association of the sun with human flesh is strongly reminiscent of ancient Mexico. Pedro Simon, the chief authority on the ethnology of the Chibchas, states in one place that the sun was not worshipped in temples, but elsewhere he cites several towns where such structures existed.

A deity of prime importance was the culture hero, Bochica, known also as Xue (my Lord) or Nemterequetaba. This individual was believed to have been sent by the creator god to Colombia. He was distinguished by a long beard and hair worn long to the waist. He traveled barefooted, but wore a cloak, the ends of which were knotted over one shoulder. He wore crosses on his head and arms, and carried a staff in his hand. He wandered through the country, teaching the people how to spin and weave

cotton. A celibate himself, he taught a high code of morality. He was believed to have been endowed with powers over the weather, causing, if he desired, rain or drought, heat or frost, and even sickness.

The legend of Bochica is so similar to that of the Mexican Quetzalcoatl that there is little doubt that the two stories have a common origin. In view of the many cultural traits in Central America of South American origin, it is not impossible that the legend of the bearded culture hero originated in South America, passing thence to the Mayas and Mexicans. Bochica was probably the most important deity of the Chibchas, and the special patron of the warriors. Only gold was offered him in sacrifice.

The rainbow, as among the Mayas, was the deity of childbirth, and those suffering from fevers invoked him. The rainbow's appearance was believed to bring death.

The deity of drink, who was called Nencatacoa, was believed to join in carousals, singing and dancing with the participants. He was also the protector of the weavers and embroiderers of cloth. He was represented sometimes as a fox, sometimes as a bear-like animal. Again we see a resemblance with Mexico, since the Aztec god Macuil-Xochipilli was the god of amusement and dancing and also the patron of weavers, painters, and artists in general. It would be strange if an apparently fortuitous association of festivity with textile art should have developed independently in two advanced cultures.

Other gods mentioned by the early writers include one who was keeper of the roads, of which there were many in various parts of Colombia. He was also reported to have acted as guardian of the boundaries of the fields. Perhaps because information largely reached the Spaniards from persons of rank, there is no information on agricultural deities other than that Bachue (p. 127) was protectress of vegetables. Bochica also appears to have

been an agricultural god in view of his power over the rain and temperature.

Each town had thatched huts which served as temples. The floors were covered with rushes, while round the walls were placed barbecues on which were seated idols of various sizes. These idols, which were made of wood, copper, gold, cotton, thread, and wax or pottery, were arranged in pairs—male and female—on the barbecues. Sometimes they were dressed in cotton cloaks and adorned with hair.

When the great temple of Iraca was erected, slaves were buried alive under the four corner posts. The walls were decorated with patterns worked in rushes. Roads, seven or eight paces wide and some sixty yards long, connected the houses of the leading chiefs with the temple. These roads, which were provided with gutters at each side, were carefully leveled.

On entering a temple, the worshipper walked very quietly with downcast eyes and frequently stopped to bow. Offerings of food, cloth, gold, emeralds, and incense were given to the priests, who placed them on mats resting on the barbecues, or in hollow pottery idols, which were subsequently buried in the ground.

Among the Aurohuacos, feasts ending in drunken carousals were held at different temples in turn at new moon, or immediately afterwards. The most important of these was held alternate years at the time of the January new moon.

The Chibchas held important religious feasts early in March and June, possibly at new moon, although the chronicler does not state this. All the household rubbish was burnt and the resultant ashes, together with those accumulated in the hearth, were dumped in the open country clear of the village. At the same time the boys were made to wash themselves before dawn. Then they were beaten and sent forth with a netted carrying bag.

A few days later each returned with a present for the man who had beaten him. Perhaps this individual was his maternal uncle.

There was a regular priesthood among the Chibchas, the ranks being recruited from the sons of the sisters of the priests. Eligible youths were taken at about the time of puberty to a training college, where an old man taught them the rites and ceremonies, history, medical learning, and the computation of time. The youths were subjected to vigorous fasts, for most of the time they were not permitted to eat by day anything but a little maize without salt or pepper. This training lasted twelve years, at the end of which period the candidate's ears and nose-septum were pierced and gold ornaments inserted (Case 14, Hall 9, and Case 1 in Stanley Field Hall). The initiate was then taken to the river where he washed himself and donned new clothing. Thence he journeyed to the house of the chief, who presented him with a calabash in which to keep coca leaves (probably lime mixed with the coca leaves), and some finely worked cotton cloaks, and at the same time permission was given the young man to practice as a priest. Priests lived in houses close to the temples, leaving them only for religious functions and to practice as medicine-men. The community was responsible for feeding and clothing the priests, but an adequate supply of food did not present a serious problem, since all priests were required to eat sparingly when they were not actually fasting. They practiced penance by flagellation, and were forbidden to marry. A priest found guilty of breaking the rule of celibacy was deprived of his post. However, priests were allowed the full use of coca, which they chewed mixed with lime obtained from grinding small shells. Coca was even burnt before the idols as a kind of incense.

In years of drought the priests fasted vigorously for several days before climbing a sacred hill. There they burnt an incense called moque and rags covered with

turpentine, and, taking the ashes, scattered them in the wind. This ceremony was believed to cause rain-bringing clouds to form.

Men and women in trouble consulted the local priest, who, shutting himself up in his hut, chewed tobacco. On emerging from his vision, he announced the length of the fast imposed on the person. This fast was very severe. The individual was not allowed to eat meat, fish, pepper, or salt, nor to wash himself during its course. Continence was also enforced. At the end of the fast the individual returned to the priest with a present. The latter undressed twenty paces in front of the temple, and receiving the present, threw it into the water, placed it in a cave, or buried it. Next morning he announced the answer of the god, and received in exchange a present of two cotton cloaks and a little gold. There were no grades of priesthood, all being of the same rank, although some achieved more fame than others.

Human sacrifice was practiced, but apparently not extensively, except in the case of children, who were regularly sacrificed to the sun. For this purpose some of them were reared from a very early age in a special college. This college was situated on the slopes of the Cordillera leading down to the San Juan plains, about eighty miles south of Bogotá, and outside Chibcha territory. Merchants purchased these boys to re-sell to Chibcha chiefs at a high price, each chief possessing one, or, possibly, two or three. They served as singers in the temples and acted as interpreters of the sun. They were considered so holy that their feet were not allowed to touch the earth, nor was any one allowed to eat from their plates.

On reaching puberty they were sacrificed; their hearts and entrails were removed, and their heads cut off. This sacrifice was said to have been made in honor of the sun, but if one of these boys had had relations with a woman, he was not considered a worthy sacrificial offering, and was returned to civil life.

In times of war the Chibchas endeavored to capture children from the enemy. Some of these were immediately sacrificed, their throats being cut and their blood sprinkled on the ground and the corner posts of the temple. The bodies were carried to some hilltop as food for the sun. Others were sacrificed before going to war or when rain was needed, since drought was believed to have been caused by the sun. For the rain sacrifice one of the children was taken to the east side of a hilltop at daybreak. There he was laid out on a rich cloth and his throat was cut amid the shouts of the populace. The blood was rubbed on certain rocks which caught the first rays of the morning sun, doubtlessly with the idea that the sun would drink it. Frequently the body was left on the hilltop, the priests revisiting the spot after a few days. If the flesh had disappeared, it was believed that the sun had accepted and devoured the offering, and would grant the desire of the people.

In the course of the Spanish conquest the Chibchas on one occasion threw children down to the Spaniards from a high rock. This was probably done because the Spaniards were at first considered to be children of the sun.

The chiefs had their own manner of human sacrifice. They placed the victims in a sort of crow's nest on top of a tall corner post of the fence round the house. Then with spears and arrows they shot at him from the ground. The blood was collected and the body lowered to the ground. Then with dances a procession wended its way along a broad road to a near-by hilltop. There the priests smeared the blood on stones, which the early morning rays of the sun would reach, and buried the body.

In addition to these sacrifices of human beings, offerings of food, gold, emeralds, and clothing were made to the gods. It is stated by one writer that parrots, which had been taught to talk, were sacrificed in large numbers.

There existed in Chibchan territory a number of sacred groves, in the soil of which the people secretly

buried offerings. No one would so much as cut a branch off a tree in one of these groves, and it is said that a person would die rather than steal offerings that had been buried within their confines.

Medicine-men and divines existed in large numbers among the Colombians. Divinations were made as a result of visions obtained from chewing the narcotic *Datura sanguinea*. In the case of a robbery the medicine-man drew ten lines radiating from the scene of the robbery, each line corresponding to one finger of the medicine-man's hands. Then, taking a small quantity of *Datura*, the medicine-man carefully watched to see which of his ten fingers first trembled. The corresponding line indicated the whereabouts of the robber. In order to know if an undertaking would be successful two herbal infusions were drunk. The joints of the body were classified as lucky and unlucky, and the divination was based on which joints first twitched. Medicine-men carried with them small calabashes containing the powdered leaves of a certain herb called yop or yopa. In making a divination the medicine-man snuffed this powder up his nostrils. This resulted in a mucous secretion which was allowed to dribble down from the nose to the mouth. If it should be in a straight line the answer was favorable; but were the flow twisted, the divination was unfavorable. The Colimas divined by the calls of birds and by the twitching of eyelids.

The Chibchas were not apparently a very warlike people, since they made no attempt to recapture the fertile valleys of the Magdalena of which they had been dispossessed. Among themselves, however, they fought incessantly. The people of Tunja, and in all probability all the Chibchas, invoked the sun for a month before going to war, explaining and justifying their reasons for fighting. This was also a Panche custom. The Tunja Chibchas used spear-throwers and lances about six feet long, but the Panches, a warlike people, used bows and arrows, slings, and two-edged swords. These last possibly were made

of wood with sharpened flints set in along both sides. They also carried hollow hide shields in which weapons were kept when not in use. The Bogotáns are reported by Oviedo to have used poisoned darts, but this statement is probably inaccurate. On the other hand the Colimas were armed with bows and poisoned arrows. Father Simon credits the Bogotáns with darts of palm-wood with the points hardened by fire, bows and poisonless arrows, slings, wooden swords, and short cane darts with very hard wooden foreshafts. These were probably propelled by means of spear-throwers.

War was declared throughout this region by sending messengers to the enemy with a declaration to that effect. These messengers were entertained by the enemy until the conclusion of peace. Messengers were also sent by the enemy accepting the challenge, and before setting forth to war children were sacrificed to the sun. The day for battle was arranged between the combatants, surprise attacks being considered unethical. The armies usually fought in squadrons, the chief being carried into battle on a litter, and the desiccated corpses of dead chieftains were also carried into the fray. The battle opened with the army advancing to the music of trumpets (probably of conch-shell) and wooden flutes. Both the Chibchas and Panches made pits in the ground in which were placed sharp-pointed stakes. One wonders if this was a development of warfare brought about by the introduction of the horse by the Spanish conquistadors.

Among certain tribes of the Magdalena Valley, including possibly the Colimas, a poison of the nature of tetanus was used. The points were, and still are to this day, dipped into a liquid formed by the decaying flesh of animals, such as snakes, toads, and spiders. Poison was also used in the Cartagena regions in warfare.

Little is known of the methods of hunting among the peoples of Colombia. Blow-guns are reported from the Santa Marta region as well as from the region of the

Choco Indians of the Pacific coast. In the former case they were used only for hunting birds for their plumage, since the Santa Marta people are reported as never eating meat.

The Chibchas, living in the cold uplands, needed clothing. Men and women wore cotton cloths wrapped around the body with a cloth over the shoulders. The men wore this tied together above the shoulder; the women joined the ends of the shoulder cloak with a pin in the same way as the Peruvians and Diaguites used the topo. Several gold pins probably used for this purpose may be seen in Case 14. Examples of earrings, ear-plugs, nose-plugs, and breast ornaments in gold and gold alloys may be seen in this case, in Hall 31, and in Case 1 in Stanley Field Hall. Some of the finest gold work is to be seen in the William Wrigley Collection from the Nechi Valley, northern Antioquia. Of particularly fine workmanship are the three pairs of earrings from this region. The ear-plugs used in ancient Colombia were usually circular or crescentic, the horns of the crescent touching the septum of the nose, but various other shapes were also used (Plate X). Judging by the collections from the Nechi Valley, women of rank in that region wore golden breast-covers. In the Santa Marta region, Dr. J. A. Mason uncovered some very beautiful stone pectorals (Case 14), some of which are of astonishing breadth. From this area are the stone batons, several of which are intricately carved, as well as the stone monolithic axes. Culturally the Taironas of Santa Marta appear to be closely connected with northern Venezuela. The Santa Marta people, Oviedo writes, wore necklaces of human teeth and placed human skulls on posts in front of their houses.

In the lowlands naturally less clothing was worn. Among the Colimas the clothing of men and women was confined to a cord tied round the waist. Should this break the individual was filled with shame and con-

fusion, sitting down and covering the private parts until the cord could be mended. Among this same people there were public prostitutes who lived in houses a short distance outside the towns. In contrast to the other Colima women, they wore elaborate cloths reaching below the knees and were decked in a profusion of jewelry. Unlike most prostitutes of Middle America, they did not follow this career in order to amass a dowry, for we are told that they never married.

In the Santa Marta region men of rank wore cloths round the shoulders. These were decorated in woven designs and had jewels of carnelian, emerald, and jasper sewn on to them. The men in this area had penis covers made of cane tubes or shell, tied to the waist with a string. Farther west, in the area between the Darien and Magdalena rivers, these tubes were made of gold, while in the areas contiguous to Venezuela a gourd was used. According to an early seventeenth century report the Goajiros, of the peninsula of that name, used ponchos of cotton reaching to the knees. This poncho garment, however, may have been introduced after the conquest.

Shell necklaces, manufactured in the Santa Marta region, were exported to the interior of Colombia in large quantities, while the natives of Uraba were renowned for the finely woven hammocks of cotton they produced. There was a large trade in these also to neighboring peoples. Trade in gold, emeralds, and salt has already received mention. The Quimbayas are generally supposed to have been the finest workers in gold in ancient Colombia, but there is as yet no real evidence that this is so.

The ancient Colombians worked native gold, which frequently contains an unusually high percentage of silver and copper. Usually they alloyed gold with copper, presumably to obtain a harder metal, but they managed to retain the gold color by a secret process in which the sap of a certain plant was said to have been rubbed on the surface of the object. Subsequently, the ornament was

treated with fire. It is possible that the acid of the plant acted like hydrochloric acid. The percentage of copper in these alloys, which were called tumbago, varied from one-third to one-half. The proportion of copper was intentionally fixed in all probability, although this is difficult to prove at the present time since most objects of tumbago from Colombia lack information on provenience and date of manufacture.

The vast majority of tumbago objects are ornaments made either to be worn or to serve as offerings to the gods. A few obvious tools have been reported. These consist of chisels, awls, and hoes. Tests on some of these show that they have been hardened by cold-hammering, and in hardness equal the bronze tools of Peru and Bolivia. It is strange that so few metal tools were used in ancient Colombia.

Ornaments of pure copper are relatively scarce in Colombia, while no bronze has as yet been reported by analysis. The apparent absence of bronze ornaments or tools is in all probability due to the rarity of tin in that country.

Most of the small metal ornaments were made in molds, presumably of pottery. Apparently the required design was first modeled in wax or resin. The figure was then covered with a thin layer of finely powdered charcoal and enclosed in a casing of clay with a funnel leading to it from the surface. The mold was then heated so that the wax melted and ran out through the funnel, leaving a space of the required shape. This was filled with molten metal. When this had cooled the clay mold was broken, or opened, if made in two close-fitting sections, and the metal figure removed. Frequently the cast objects are hollow, a core of manganese and sand having been used.

Gold designs in repoussé were commonly used in large ornaments, thin plates of gold being laid on stone dies of the required design (Fig. 11, *g*) and beaten so that the design showed in very low relief. Examples of this type of

work may be seen on the breastplates in Stanley Field Hall (Case 1) as well as in the disk-shaped ornaments in Case 14 of Hall 9.

The Chibchas were inferior workers in gold, and such gold as they used was largely imported from neighboring tribes. Typical of this region are roughly rectangular plates of tumbago, to which tumbago wire was soldered in such a way as to produce a human figure. In some cases the head was cast separately in a mold and then soldered to the plaque. The art of metal-working in Colombia undoubtedly was learned from the Ecuadorians, who in turn had acquired their knowledge from Peru.

Colombian pottery varies in quality from one area to another to a marked degree. In general, polychrome pottery is rare. In the large collections in Field Museum the proportion runs to only about 6 per cent. This is very low, considering that the bulk of the material is unselected. The finest effects were produced by what is apparently a batik, or wax process (Case 15 and Plate VII). The bird-shaped vessel (65097) was painted with a coating of wax on such parts as are now white. The vessel was then dipped in red. After the pot was dry the wax was melted off, and the area formerly covered by it was painted white. Then the pot was once more painted with wax except for such areas as are now black. These were left uncoated with wax, and, accordingly, were the only parts to take a coat when the vessel was dipped in black paint. When the vessel was again dry, the wax coating was melted off, and the original white and red colors were then uncovered, and the vessel appeared as it now is except that in places the black has worn off, showing the original red or white beneath.

Practically all the polychrome and many of the duochrome vessels in Field Museum collections from Colombia have been painted in this technique. In the majority of cases the locality of these vessels of wax technique is not given, but where it is, they are said to have

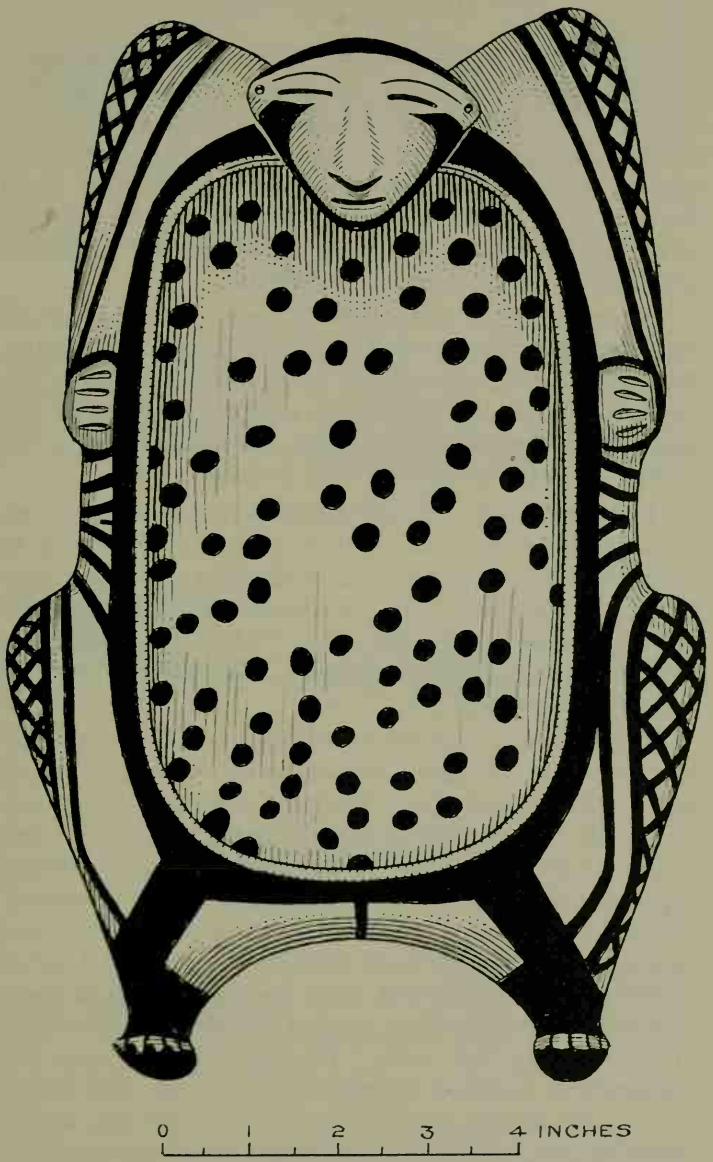

FIG. 16. Pottery vessel from Colombia. Vessels shaped as human beings lying on their backs are sparsely distributed from Argentina to Central America (Case 16).

been found in the Cauca Valley. This style of batik work, called negative painting, is found from Ecuador to Mexico, the frequency gradually decreasing as one travels northward. From this one may infer that the process reached Colombia from the south. In some cases the shapes are decidedly Peruvian, notably in the use of the double-spout linked by a looped handle, the double whistling jar and the use of bird vessels.

Among the finest wares from Colombia, occur unpainted vessels deeply carved with geometric patterns (Case 16). Two of these vessels are said to have been found in the Department of Antioquia, the original location of the rest being unknown. Joyce figures a similar vessel in the British Museum as coming from Tolima.

Bowls with high expanding annular bases are common; perhaps the shape was derived from the Highlands of Ecuador, where it also occurs in abundance. Some large pot-stands decorated in polychrome negative painting are to be seen in Case 15 (Plate VII). The locality of one is given as Anserma, Cauca. This would place it in Quimbayan territory.

Tripod vessels are extremely rare in Colombia (only one in Field Museum collections). This is a small censer with a black slip. Tetrapod vessels with mammiform legs occasionally occur on both polychrome and incised ware (Plate IX). The mammiform tetrapod support is diagnostic of early culture in Central America, but nothing is known of its position in Colombia. Cultural relations between northern South America and Central America point to cultural flows having been from south to north rather than from Central America into Colombia at a relatively late date. However, in Colombia the mammiform tetrapod support is associated with shapes such as the double spout with connecting ribbon, double whistling jars, and bird effigy vessels, which appear on the northern coast of Peru in the Middle Chimu period. If these features represent cultural contacts and are not

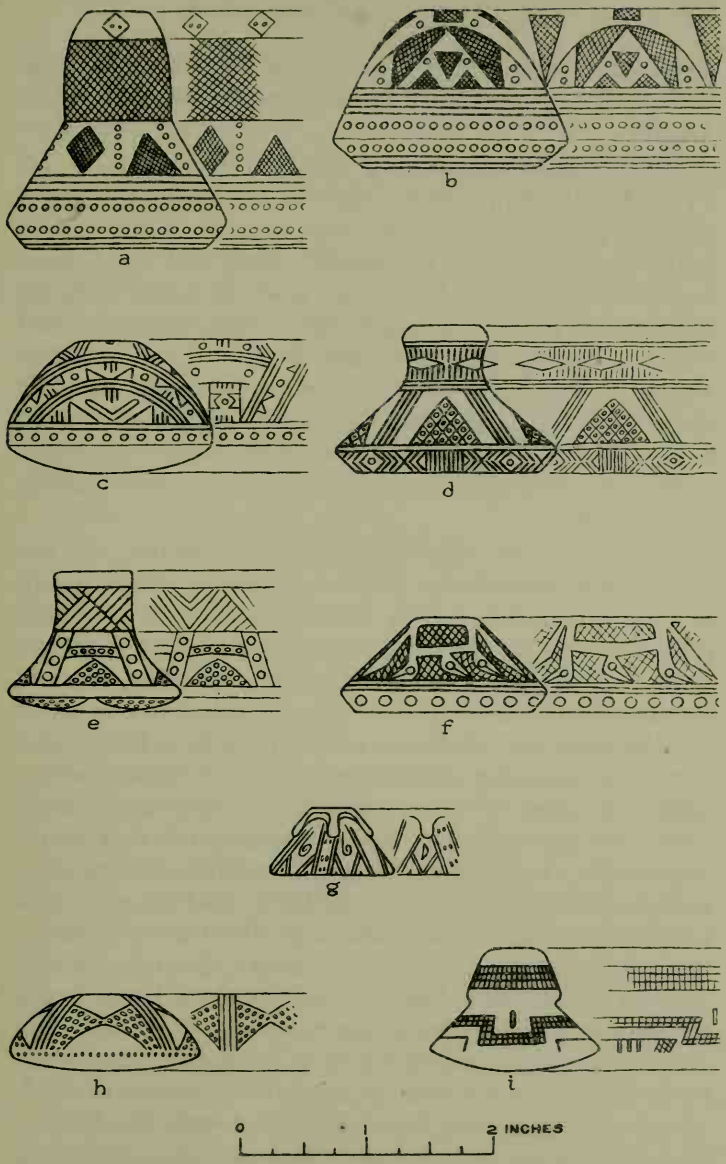

FIG. 17. Pottery spindle whorls. Delicately carved spindle whorls from Colombia (Case 16).

merely fortuitous, Early Nazca, Early Chimu, and Early Chavin must antedate anything yet found in Central America.

Well-finished stone celts may be seen in Case 14. Typical of the Santa Marta district are monolithic axes, blades and hafts being carved from the same stone. These could have had little utilitarian value, and must have served as emblems of rank or been in some religious ceremony. From this same region come delicate shell carvings representing crocodiles (Case 14). As already noted the Taironas of Santa Marta were famed for their skill in working shell, and their shell beads were traded as far as the Chibcha country, but their culture is in many ways more typical of Venezuela than the Andine regions of Colombia.

Although the Colombians, generally speaking, did not carve stone except for tools, there was a remarkable exception to this custom in the neighborhood of San Agustin near the source of the Magdalena and the Naranjo rivers in the Department of Huila. The sites, which are situated on the eastern flank of the central Cordillera, are some five thousand feet above sea level. Here have been found very large numbers of squat stone statues of an average height of about five feet marked by abnormally large heads and vestigial legs. Some of these sculptures bear a remarkable resemblance to certain representations of a jaguar deity from the north of Peru, both in stone and pottery, the former attributable to the Chavin culture, the latter to the Early Chimu period. Both in the San Agustin region and in the north of Peru these jaguar heads are shown with immense canines, flat noses, and deep grooves curving round each side of the noses and mouths. In the San Agustin region, as on the north Peruvian coast, snakes are occasionally found associated with this deity.

In the Early Chimu period this tusked individual is clearly a god of agriculture. Out of ten vessels from this area in Field Museum collections, showing a figure

associated with maize or other agricultural plants, nine represent this tusked deity. The same deity is represented in Ecuadorian gold art, and in all probability there is a continuous distribution of the cult from northern Peru to southern Colombia. Presumably the movement was from south to north.

The San Agustin people made small stone shrines about six feet high and twelve feet long roofed with slabs of ferruginous limestone. In these were lodged some of the stone statues while others of a more columnar type served as pillars at the front corners. From this same area is also reported a slab-vaulted burial chamber in a mound. This contained three empty stone coffins and pottery.

The San Agustin pottery in some respects, notably in the frequent use of an expanding base, serves as a link between central Colombia and the Highlands of Ecuador. Fragments of tripod bowls closely resembling those of the Highlands of Ecuador are also found at San Agustin.

The time has not come to attempt seriously to fix the relations between Colombia and her neighbors, since so little is known of the archaeology of Colombia itself. Nevertheless, there are certain tentative conclusions of a general nature which one can make.

Cultural contacts with the south are apparent. Such features as the chewing of coca with lime, the cultivation of the potato, quinoa, and arracacha, negative painting, the ceremonial shaving of children's hair, the alloying of gold with copper, the cult of the tusked deity, and child sacrifice point very clearly to affiliations with Ecuador and Peru. Most, if not all, of these features would seem to have passed from south to north. Rivet, however, believes that the working of gold originated in eastern South America and was carried thence into Colombia, spreading southward to Peru. Gold, as already pointed out (p. 21) was apparently worked in Peru before copper. In view of the higher and probably earlier civilization of Peru, it would seem plausible that gold originated in that area.

There are, however, other traits in Colombia which undoubtedly originated in the Amazon Valley and adjacent regions, spreading to Colombia from the east and southeast. Among these might be cited plants, such as manioc and the pineapple, and the hammock, the penis gourd, poison for projectiles, the blow-gun, and suspended hollow log drums.

Relations with Central America appear to have been fairly close, at a somewhat late date. Metal-working, various agricultural plants, the hammock, negative painting, tobacco and lime chewing, and the use of datura in divination seem to have been passed on by Colombia to the cultures of Middle America. It should be noted that Rivet is of the opinion that metallurgy reached Mexico from northern Peru by sea. He bases his theory mainly on the absence of bronze- and silver-working in Colombia. Against this theory it should be noted that the Colombians probably did not employ bronze because of the scarcity of tin in their country. The principle of alloying was known to the Colombians, and on being passed on to a country where tin was abundant, would sooner or later be applied to the production of bronze; secondly, the Peruvians were not particularly good sailors; and, lastly, the Colombian-inspired gold work of Panama and Costa Rica was traded into Central America, examples having been found in the sacred cenote of sacrifice at Chichen Itza, Yucatan.

The cultural importance of Colombia has undoubtedly been under-rated. One of the chief reasons for relegating the ancient cultures of Colombia to an inferior position is that they did not employ stone structurally. Is this not a case of judging by archaeological standards? The stone temple remains; the jacal structure has disappeared. Nevertheless, anyone who has slept in a Maya stone building during the rainy season must have realized its disadvantage in comparison with a wooden structure with thatched roof. The former is extremely damp and

FIG. 18. Colombian pottery. A beautiful polychrome vessel of Chibcha workmanship. Found at Chia, in the Department of Cundinamarca (Case 16).

unhealthy; the latter, open to wind and sun, quickly dries. In choosing the thatched temple, the Colombians did not build for posterity; they built for their own comfort.

Had no advanced culture existed in Colombia as a link between North and South America, the cultures of Peru and Central America would have been measurably poorer. This applies particularly to Central America. It is true that the Colombians were far behind the Peruvians in political organization, for there was only an incipient empire centered at Bogotá. However, its expansion appears to have been retarded, not by the incapacity of the Bogotáns for organized government, but by their inability to conquer their neighbors, the Chibchans of Tunja to the north and the Colimas and Panches on their flanks.

The archaeologically important field of Venezuela is still almost unknown, and there are no archaeological collections from that country in Field Museum. Excavations in recent years would suggest that western Venezuela has culturally much in common with the Tairona area of Santa Marta, Colombia. Eastern Venezuela appears to be culturally connected with the Amazon Valley and the region lying north of the river, while both regions have been the inspiration of West Indian cultures.

A small collection from the mouth of the Amazon, particularly from Marajo Island, is displayed in Case 33, but since this culture is more closely related to the living cultures of the Amazon and Orinoco basins than to the ancient cultures of the Andine regions, it will be described in a future guide to the ethnological collections of South America.

Culturally South America presents an unbalanced aspect. A thin section on the west stretching from Panama to northern Chile and northern Argentina was inhabited by peoples who had attained a relatively high cultural level, whereas the eastern two-thirds of the continent, including all of Brazil, Paraguay, the Guianas, Venezuela, most of Argentina and Chile, and the eastern

parts of Colombia, Ecuador, Peru, and Bolivia were on a considerably lower cultural plane. The former area is the region of maize-potato-quinoa culture; the latter the region of manioc cultivation.

Many writers have attempted to divide the western area of high culture into various subdivisions, corresponding roughly to the present political divisions, but the whole region is indivisible. A comparison of Chibcha culture with Diaguite culture reveals marked differences, but in the intervening area the missing stages can usually be traced. Such traits as the tusked jaguar god, found from Peru to Colombia, the distribution of agricultural plants, metallurgy, figurines of pottery, magico-religious beliefs, such as the head-shaving ceremony (p. 100), burial customs, weapons, child sacrifice, art designs, and coca and lime chewing, are common to the whole area. It is true, of course, that some cultural sub-areas show marked extraneous influences, such as the Central American and eastern South American influences which existed in central and northern Colombia, or the Chaco and eastern influences, as exemplified by the use of the smoking pipe and the bow-string guard, which existed in the Diaguite region. These extraneous influences, however, are not sufficient to distort the common cultural pattern.

The eastern two-thirds of South America, largely a region of hot humid lowlands in contrast to the mountains and semi-arid coastal plains which formed the home of the high cultures of the western region, made definite contributions to the advancement of New World culture. Manioc, the pineapple, fish poisoning, the hammock, the blow-gun, arrow poisoning, and seamless skirts are traits which undoubtedly originated in eastern South America, but in most cases the distribution of a specific cultural object, the pan pipe for example, is so wide that one can make no deduction as to where it was invented. Consequently, one tends to credit the center of high civilization with inventions which may have been made elsewhere.

Nevertheless, there can be little doubt that wherever the beginnings of culture may first have developed in South America, the total progress was greatest in the Andine regions and on the coastal plains to the west.

The development of culture in South America is not purely a subject for an abstract study of peoples alien to us in race and culture. Modern civilization has unconsciously adopted many of the elements of the material cultures of these ancient peoples. In food alone the peoples of South America have varied our diet by contributing the potato, tomato, pineapple, manioc, sweet potato, and peanuts. They have also bequeathed to us rubber; while in the realm of art ancient Peru has given the world textile products of workmanship and beauty never attained elsewhere in the history of the world.

In the fields of sociology and economics the history of Peru gives us an insight into the function of an autocracy grafted on communism, and an opportunity of studying the successes and failures of that novel system. Such a study may prove of great value in preparing for the planned economy, which civilization will have to consider thoughtfully in the near future as a possible answer to the problems raised by the age of machinery.

LIST OF CASES IN HALL 9

CASE NUMBER

1–13.—Ethnology.

14.—Colombia: Gold ornaments and stone work.

15.—Colombia: Polychrome pottery.

16.—Colombia: Pottery vessels, stamps and spindle whorls.

17.—Colombia (west side).
La Plata Island (east side).

18.—Ecuador.

19–20.—Peru: Early Chimu pottery.

21.—Peru: Middle Chimu (west side).
Agriculture and metal-working of the Chimu (east side).

22.—Peru: Late Chimu.

23.—Peru: Pachacamac (west side).
Ancon and Chancay (east side).

24–25.—Peru: Textiles.

26.—Peru: Burials at Ancon.

27.—Peru: "Mummies" from Ancon.

28.—Peru: Cañete.

29.—Peru: Nazca.

30–31.—Peru: Inca pottery and stone work.

32.—Peru: Metals and textiles.

33.—South America and West Indies.

34–35.—Argentina: Pottery.

36.—Argentina: Metals and stone work.

37.—Argentina: Pottery.

38.—Chile.

39.—Argentina: Funerary urns.

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INDEX

Abacus, 53
Abortion, Fuegians, 11
Achira roots, 23
Adobe, bricks, 21, 24, 28, 73, 108
Agave, rope for suspension bridges, 53; used for making cloth, 99
Age, grades, 101; groups in Peru, 51
Agouti, 73
Agricultural, land allotted, 48; designs in pottery, 23
Agriculture, 6, 12, 13, 20, 25, 42, 49; Atacaman, 88; Chimu, god of, 142; Colombia, 119; Diaguite, 73; discovery of, 12; Ecuador, 98, 109; god of, 42, 128, 142; see Cotton, Maize, Manioc
Alaska, 7
Alcohol, see Intoxication
Algarrobo tree, 74, 79
Alligator pear, 119
Alloy, 28, 64; copper and gold, 25, 136; see Bronze
Aloe fiber used, 60
Alpaca, 59
Amazon Valley, 39
Amulets, 76
Ancestor worship, 42
Ancon, culture of, 29
Andahuaylas, 30
Andes, 5, 28, 39
Andine peoples, 96; region, cultural focus, 148
Animal gods, 128
Animals, in designs, 68; now extinct, 7; see Birds, Fish, Jaguar, Pumas
Animism in Peru, 45, 77
Annatto, red coloring, 124
Anona fruit, 119
Antiquity of man in America, 8
Antofogasta, 88
Ants, edible, 119
Apiculture, 120
Apurimac River, 35
Araucanians, 39
Arawaks, 17
Architecture; see Adobe, Mortar, Mud, Pyramids, Stone
Argentina, 5, 72–94
Armadillos, pots shaped as, 82
Arrows, 75; see Bows and Arrows
Art, 106; see Animal designs, Color painting, Pigments, Pottery
Ashes, ceremonially scattered, 131
Atacama, Desert of, 88
Atacamans, 88
Aurohuacos of Colombia, 125
Ax, of bronze, 56, 84, 92; of stone, 113, 135, 142
Ayamarca tribe, 35
Ayllu clan, 42
Aymara languages, 72
Aztecs, 45, 50, 126

Ball game, religious, 16, 17
Balsas, reed boats, 39, 54, 109
Bamboo, for fences, 116; knife, 122
Barbacoan tribes, Colombia, 115
Barbecues, 129
Bark, cloth, 109; for incense, 111; for utensils, 11
Barter, 50, 121; see Salt
Basketry, 8, 92; Diaguite, 83
Batik, 62, 138
Beads, 21; of glass, 30, 83
Beans, 15, 20, 73, 98, 109; buried with dead, 46
Bees domesticated, 120
Bellows, 66
Bells, 86, 90, 92; of bronze, 84
Bering Strait, 7, 9
Birds, art designs, 64; domesticated, 74; hunted for plumage, 135; protector of, 78
Birth, 121; ceremonies, 100; protector of, 78; registered in Peru, 50; see Naming
Blow-guns, 6, 16, 134, 144
Bogotá, 114
Bolas, 90; hunting implement, 75
Bolivia, metals found in, 64
Bone, 94; objects of, 74, 88, 90, 92
Bowls, 66, 79, 140; see Tripod bowls
Bows and arrows, 8, 11, 21, 75, 90, 133; ceremonial, 122; in Peru, 56
Brazil, 5
Breastplates, 106, 135; see Metals
Bridges, 53
British Honduras, 102

Bronze, 25, 28, 64, 83, 92; axes, 56; not in Colombia, 137
Burials, 21, 24, 77, 86, 100, 110, 111, 124; in Peru, 25; of possessions, 45; see Mummies, Urns
Buttons, mother-of-pearl, 21

Caca language, 72
Cacao, 17
Cajamarca, 28
Calabashes, 100, 133; see Gourds
Calchaqui tribe, 72
Caldera, Chile, 92
Calendar, 52, 110; of Incas, 37, 104; see Lunar reckoning, Moon, Time
Cañaris, tribe of Ecuador, 95
Cannibalism, 118
Canoes, 6; dugout, 109; of bark, 11; see Balsa
Caraquis tribe, 109
Caras, tribe of Ecuador, 95
Carousals, see Intoxication
Cassava, 144, 109; see Manioc
Castes of Peru, 49
Catamarca, 72
Cauca Valley, 140; Colombia, 114
Caves, burial, 47; dwellings, 5
Celibacy, 130; see Initiation, Priests
Celts, 142; see Stone, Weapons
Cemeteries, 88; see Burial, Death, Mummies
Census with quipus, 51
Central America, 16, 33, 102, 105, 107, 110, 116, 128, 140, 144; see British Honduras, Mayas, Mexico
Ceramics, see Pottery
Chaco region, 14
Chanchan in Moche Valley, 27
Chasquis, official runners, 54, 97
Chavin, 29; style of, 25
Chewing, 143; see Coca, Lime, Tobacco
Chibchas, 114, 126, 135
Chicama Valley, 18
Chicha, fermented maize, 122
Chiefs, 117
Childbirth, 128; see Birth
Children, 110; Colombia, 120–123; sacrificed, 76, 105, 111, 132, 143; sacrificed to sun, 131, 134; see Initiation
Chile, 72–94
Chili pepper, 98, 109
Chimu, area, 24; culture, 23, 25–29
Chinese, 8
Chiqui, Peruvian deity, 79
Chiriguanos, 70; invaders, 40; trans-Andine tribe, 57
Chronology, Nazca, 23
Civilization, origins of, 5
Clans, 27, 42, 48, 49, 123
Clay, 127; see Pigments
Climate, of Colombia, 119; of Ecuador, 95; of Peru, 18
Clothing, 7, 10, 57, 75, 135; of Ecuador, 99, 109, 112, 135; of Pastos, 99; see Hide, Textiles, Weaving, Wool
Clubs, 56, 66, 68, 86, 90, 110
Coca, 16, 46, 78, 88, 90, 126, 130, 147
Coconuco tribe, Colombia, 114
Collas, inhabitants near Titicaca, 47
Collecting wild produce, 14
Colombia, 46, 79, 107, 114–148
Colors, on pots, 80; on quipu, 52; textiles, 28; see Pigments
Combs for hair, 46
Communal houses for men, 73
Communism, in Peru, 51; and autocracy, 148
Conch-shell trumpets, 134
Continence, 117, 131; of chiefs, 117
Copper, 25, 64, 75, 76, 83, 92, 137; axes, 23
Corpse, 102; see Death, Funerals, Sorcery
Cotton, 20, 50, 109, 119; first cultivated, 15
Counters for games, 113
Counting, see Quipus, Abacus
Cousin marriage, 11
Cousins, 123
Cradles, 121
Crazy plant, 125
Creators, see Gods, Legends, Mythology
Cucumber of Peru, *pepino*, 42
Cultural patterns, 5
Culture centers of Colombia, 114; see Diffusion
Curassow, 109
Cuzco, 28, 32, 37, 49

Dance at funeral, 101, 119
Dancing, god of, 128
Datura sanguinea, 125, 133, 144

Death, 76, 86; registered in Peru, 50; survival after, 45; see Burial, Graves, Religion
Deer, 74
Deformation of heads, 21, 25, 112, 121
Depilation, see Tweezers
Designs, Draconian, 82; incised on pots, 19, 29, 80
Diaguite tribe, 72–76
Diffusion of culture, 1–17, 19, 68, 80, 82, 84, 113, 140, 143, 144, 147
Digging-sticks, 50
Divination, 44, 121, 133
Dogs, domesticated, 8; ceremonially killed, 45, 78; food, 119; sacrificed, 44
Domestication, of insects, 120; of plants, 12, 13; see Agriculture, Dogs, Guinea pigs, Rhea
Doorways, 72
Droughts, 79, 132
Drums, 106
Ducks, 74
Dwellings, see Caves, Houses, Wigwam
Dyeing by tie process, 62
Dyes, see Colors, Pigments, Pottery, Textiles, Weaving

Ear-plugs, 49, 58, 109, 135
Ears pierced, 49
Earth Mother, 78
Earthquakes, 79; god of, 32
Ecuador, 40, 83, 95–113; Highlands of, 26
Education, 117, 118; in Peru, 47; see Initiation, Priests
Eggs, 74
Embalming, 111; see Mummies
Embroidery, 20, 62
Emeralds, 118; in embalming, 125; mining of, 120; object of worship, 111
Endogamy, see Marriage
Engineering, 53, 54
Equinoxes, 43
Erosion, 21, 73; see Irrigation
Eschatology, 45, 126
European influence, 30; see Spaniards
Exogamy, 123

Face, painted, 76; see Pigments
Family, as ruling caste, 118; own land, 49
Famine, 49
Fasting, 48, 130, 131
Feasts, 118, 129; Diaguite, 73
Feathers, 77, 99; for arrows, 90; for personal ornament, 74
Fertility, god of, 42; rites, 74
Feudal communities of Peru, 48
Figurines, pottery, 29, 82, 94, 112
Fire, sacred, 44
Fish, designs, 64; god, 42; poison for, 14; temple images, 111; fisherman's cult, 111
Fishing, 7, 11, 23, 94
Flowers ceremonially used, 116
Folklore, see Legends, Mythology
Food, 7; see Agriculture, Animals, Beans, Fruits, Hunting, Maize, Squashes
Foot races, 79
Foxes, 79
Fruits, 74, 109, 119; of Ecuador, 981
Funeral rites, 76; see Burial, Death, Graves

Galapagos Islands, 39, 97
Gambling boards, 68
Games, 16; of Fuegians, 11
Garcilasso de la Vega, 45
Gauchos of Argentina, 75
Ghosts, 101; see Burial, Death, Mourning
Glass beads, 83
Goats as temple images, 111
Gods, 77, 126, 136; Diaguite, 78; guardians, 128
Gold, 21, 25, 28, 43, 58, 83, 94, 99, 113, 116, 136, 143; used in embalming, 125; in Field Museum, 135; ornaments of, 37, 66; sacrificed, 118, 128, 132; stools of, 125; urns of, 125; working, 17, 137
Gongs, 84, 106
Gourds, 83, 84; penis cover, 144
Granite, 68
Graves, 45, 86, 113, 124; see Burials
Groves, sacred, 132
Grinders for corn, 108
Grinding, of maize, 86; stones, 122
Guanaco, 73; hide as clothing, 10
Guarango, *Acacua punctata*, 20

Guatemala, 80
Guava, 119
Guayaquil, 107
Guiana, 146
Guinea pigs, 99, 109, 120

Hairdressing, 46, 59, 99, 110; social distinction, 119
Hallucinations produced by datura, 16
Hammock, 16, 17, 124, 136, 144, 147
Hares, 79
Harpoon, 94; points for, 7
Harvests, 74, 105
Head-dresses, 75, 112
Head shaved, 110, 122, 144
Heads, shrunken, 111; see Jivaro Indians
Hearts cut out, 131
Henequen, 109
Hens, 74
Hide, quivers of, 90; raw, 75; shields, 134
Hoes, 86
Hogs, wild, 74
Hooks of wood, 90
Horses, 134
Houses, 11, 72, 116, 117, 129; in Ecuador, 98, 108; see Adobe
Huayna Ccapac, 40
Human sacrifice, 111, 127, 129, 131, 132; rarity of, 44; see Children, Sacrifice
Human teeth, necklaces of, 135
Hunting, 14, 75; Atacamans, 90; ceremonial, 79; deity, 78; Diaguite, 73
Hurricanes, 79

Ica Valley, 18, 22
Inca, 18, 28; rulers, 34; social organization of, 49; see Peru
Incense, 111, 129, 130
Incised designs, 29
Incised patterns on pots, 106
Inheritance, 117, 126
Initiation, 48, 76, 117, 130; of Fuegians, 11
Intaglio designs, 58
Intoxicants avoided by priests, 43
Intoxication, 74, 105, 119, 129; ceremonial, 76, 122
Irrigation, 37; in Peru, 13, 18

Jade, 68
Jaguar, deity, 142; in designs, 84, 92; on pots, 19
Jars, 79; whistling pattern of, 27
Jewelry, 66; see Emeralds, Gold, Silver
Jivaro Indians, shrunken heads of, 20, 111

Kelp in house-building
Knives, crescentic form, 92; see Weapons
Knuckle duster, 84

Labor, relays of, 51
Lacquering, 68
Lagoa Santa, skulls found at, 8
Languages, Chibcha, 114; see Barbacoan, Caca, Quechua
Lapis lazuli, 21
La Plata Island, 39, 112
La Rioja, 72
Latacungas tribe of Ecuador, 95
Legends, of creation, 41, 126, 127; of Ecuador, 102; of origin of Incas, 32
Lice, 99
Lightning god, 41
Lime, 78, 88, 119, 130; mixed with coca, 46; mixed with tobacco, 16; see Coca, Tobacco
Litter for carrying chiefs, 116, 134
Lizard in sculpture, 111
Llamas, 50, 59, 74, 88, 98; sacrificed, 44; wool, 20
Looms, 109; see Weaving
Lunar time reckoning, 52, 104

Macaws, 104
Magdalena River, 114, 115
Magic, 76; see Divination, Priests, Religion, Sorcery
Maize, 12, 73, 98, 109, 119, 143; legendary origin of, 42
Manabi Province, 108
Manabi region, 109
Manco, legendary Inca hero, 34
Manganese, 137
Manioc, 6, 13, 42, 144, 147; legendary origin of, 42
Marajo, 107; culture, in Brazil, 80; island, 146
Marriage, 100, 110, 117, 123; among Fuegians, 11; in Peru, 44, 48
Masks, 76; used by Fuegians, 11

Maule River, 39
Mayas, 17, 24, 30, 33, 41, 107, 126
Medicine-men, 133
Messengers, 54, 134
Metallurgy, 51, 64, 88; of Peru, 18
Metals, 6, 7, 16, 28, 58, 65–68, 106, 137, 144; tools, 32; see Bronze, Copper, Gold, Silver, Tin
Mexico, 17, 50, 99, 127, 128; see Aztecs
Migrations from Asia, 7; see Diffusion
Minas Geraes, skulls of, 8
Mining emeralds, 120, 121
Mirrors, 86, 92
Moccasins, 10
Moche, pyramid, 24; valley, 18
Molds, 66, 137
Molinos in Argentina, 83
Mongoloid races, 8
Monkey design on pots, 27
Monogamy, 48, 100
Monolithic axes, 142; see Axes
Moon, 104, 127, 129; temple of, 43; see Lunar reckoning
Moque, an incense, 130
Mortar, 72; of mud, 24; of stone, 86
Mosaics, 68
Mourning, 77, 101, 110, 117, 124, 126
Mud, in building, 72; plaster for walls, 98
Mummies, 46, 58, 124–125; of dogs, 45
Music, see Drums, Gongs, Trumpets, War, Whistles
Muzos tribe in Colombia, 120, 121
Mythological designs on pots, 19
Mythology and pottery, 23

Naming, 100, 110
Narcotics, 133; see Coca, Datura, Intoxication, Tobacco
Navigation, see Balsa, Canoes, Dugout
Nazca, pottery, 19, 21; valley, 18
Necklaces, 76; of human teeth, 135; of shell, 136
Needles, 66; of thorns, 109
Negative painting, 138; see Wax
Nettles, 105
Nobility of Peru, 47; see Priests, Social classes
Nose ornaments, 57, 109, 130, 135

Obsidian, 21, 110
Oca, 98
Ochre, red, 83
Octopus in sculpture, 111
Omens, 44; see Divination
Origin of South American cultures, 16
Orinoco, 5, 6, 146
Ornament, personal, 10; see Ears, Feathers, Noses, Personal ornament, Pigments

Pacay, fruit, 42, 119
Pachacamac, 41
Pachacuti (Cusi), 36; Inca ruler, 28
Paddles, 109
Paintings on wood, 70; see Pigments, Pottery
Paltas tribe of Ecuador, 95
Panama Canal, 115
Pan-pipes, 21
Paraguay, 5, 146
Parallels of culture, 143; see Diffusion
Parrots, as pets, 21; sacrificed, 132
Pastos tribe of Ecuador, 95
Peanuts, 23, 98, 109
Pectorals of gold, 135
Penis covers, 136, 144
Pepino, Peruvian cucumber, 42
Pepper in eyes, 122
Peppers, 119; see Chili pepper
Personal ornament, 58, 76, 135; feathers used, 74, 109; see Feathers, Gold, Silver
Peru, 5, 6, 13, 18–71
Pestles, 84
Physique of early immigrants, 8
Pigments, 138; for the body, 11; in architecture, 25; mourning, 12; on pottery, 19, 22
Pilgrims, 112
Pineapple, 6, 14, 16, 17, 39, 119, 144, 147
Pizarro, 30, 40, 64
Plants cultivated, 7
Plugs for ears, 49
Poison, darts, 6, 144; for fish, 14, 147; in war, 134
Polychrome pottery, 29, 106, 138; see Pigments
Polynesian contacts with South America, 9
Pomegranate, 98, 109

Ponchos of cotton, 136
Possessions, burial of, 81; see Burial, Death, Graves
Potatoes, 23, 73, 98, 105, 148; see Sweet potatoes
Pottery, 6, 16, 79; Colombian, 138, 143; Diaguite, 79; invented, 15; Ecuador, 106, 112, 113; Peru, 19, 23, 26, 29, 30, 32, 57, 71, 83, 113, 140; wax technique used in making, 62, 138; see Urns
Prescott, 48
Priesthood, Chibcha, 130; and sun worship, 43
Priests, 77
Prostitution, 136
Puberty, ceremony, 76, 122; rites, 131; see Initiation
Pueblo cultures, 82
Puerto Viejo, 110
Puma, 64; stone seat, 112
Puna, desert area, 88; island, 110
Puruhas, tribe of Ecuador, 95
Pyramids, 24, 27, 101; measurement of, 27

Quechua, 42, 78
Quetzalcoatl, 128
Quimbayas, 114, 121
Quinoa, 98, 119
Quipus, 47, 51
Quito, 38, 40, 96, 104
Quivers, 75, 90

Rabbits, 120
Races on foot, 48, 79
Rain, 129; ceremonies, 77, 79
Rainbow, deity, 128; temple of, 43
Rank and clothing, 136; see Clothing, Personal ornament
Rattles, 86
Recuay style of pottery, 25
Religion, 76; Ecuador, 104; of Fuegians of Peru, 41–71
Repoussé work, 137
Resin for embalming, 111
Rhea, 74, 82
Roads, 38, 53, 129; gods of, 128
Robbery, divination for, 133
Roofs, 73
Rubber, 148

Sacrifice, of animals, 44, 45, 74; emeralds, 111; of guanaco and agouti, 73; human, 111, 127, 129, 131; of virgins, 105; see Children
Sails, 109
Salt bartered, 120
Salta, 72
Sandals, 58, 76
San Juan, 72
Santa Maria pottery, 80
Santa Valley, 18
Santiago del Estero, 72
Sarmiento, statement of, 38
Sculpture in stone, 142
Sex taboo, 131; see Taboos, Priests, Initiation
Shamans of Fuegians, 12
Shaving the head, 110, 122, 144
Shell, 68, 76, 142; beads, 142; heaps, 29; tools, 11
Shields, 134
Sibs, 27, 123
Silver, 28, 46, 83, 113
Sins punished, 105
Skulls on house posts, 135
Sky, 105; see Moon, Stars, Sun
Slaves, 122; buried, 125
Sling, 21, 33, 48, 56, 90, 110, 133
Smelting of ores, 66
Smoking, see Tobacco
Snakes, in designs on pots, 23; as symbols of rain, 77; as temple images, 111
Social classes, of Peru, 47; distinctions, 116; see Chiefs, Education, Priests
Sodalite, 76
Soldering, 138
Sorcery, 116; death due to, 76
Spade of wood, 99
Spaniards, 40, 66, 71, 78, 83, 95, 106, 117, 120, 132, 134; see Pizarro
Spatulae of bone, 92
Spears, 11, 110; see Weapons
Spear-thrower, 7, 21, 110, 133
Spiders, sacred, 126
Spindles, ceremonial, 122
Spindle whorls, 29, 108, 112
Spinning, 59
Spout, double form in pots, 26
Squashes, 15, 73, 119
Squier visited Chanchan, 27
Stars, 73, 104
Stone, arrow-points of, 75, 92; bowls, 68; building, 28, 56; buildings, Diaguite, 72; clubs,

23; coffins, 143; dies, 137; forts, 56; implements, 8, 86; mace, 56; ornaments, 19, 76, 135; sculpture, 106; seat, 112; temple of, 43, 143; towers of, 47
Stools, gold, 125
Stucco, 117; relief, 28
Styles of Nazca pottery, 21
Succession, 40, 117
Suicide, 125
Sun, 104, 125, 126, 127, 132, 134; offering to, 74; pyramid at Moche, 24; temple at Cuzco, 43; worship of, 37, 43, 77
Supe, 29
Sweet potatoes, 23, 109, 119
Swords, two-edged, 133

Taboos, 126, 131; see Initiation, Priests, Religion, Sex relations
Taironas, culture of, in Colombia, 114, 119
Tamahi tribe, Colombia, 114
Tarantula in divination, 44
Tattooing, 58, 110; of Fuegians, 12
Tears, see Rain, Thunder god
Temples, 111; dedication of, 143; models of, 68
Teocentli, wild grass, see Maize
Terraces, 73, 108; for burial, 24; see Irrigation
Textiles, 28, 44, 59; mummy wrappings, 46; weaving, 20
Thatch, 73, 98, 108, 129
Thistles for needles, 109
Thunder, bolts as punishment, 105; god, 41, 78; temple of, 43
Tiahuanaco, 26, 30
Tierra del Fuego, 5, 6, 10, 17
Time reckoning, 52; see Calendar, Moon
Tin, 25, 64, 85, 137
Titicaca, 37, 41
Tobacco, 15, 119, 131
Tomatoes, 16, 119, 148
Tools of Fuegians, 11
Topography, 5; of Ecuador, 95
Totemic ancestor, 44; see Ancestor, Clan
Towers of masonry, 47
Transformation of god into animals, 41
Transport, 54, 116, 124
Trays of wood, 90
Trees, burial in, 125; decorated, 77; hollow, as homes, 109
Tripod bowls, 26, 82, 106
Trumpets, 134
Tucuman, 72; in Argentina, 37
Tuncahuan period, 107
Tupi-Guarani Indians, 80
Turquois, 68, 76
Tusked god, 147; see Jaguar
Tweezers, 76, 86, 92
Twine, 94
Twins, 121

Uhle, Max, 29
Urns, burial, 16, 86, 102, 125; of gold, 125; for salt, 120
Uros, coast-dwellers, Chile, 92

Vegetarianism of priests, 43
Vegetation, types of, 5
Venezuela, 146
Venison, 123
Vicuña, 59, 98
Vilcamayu River, 35
Villages, see Adobe, Architecture, Houses, Mortar, Mud, Stones
Viracocha, Inca leader, 35; sky god, 20
Virgins, sacrificed, 105; of sun temples, 43
Viru valley, 18
Visions, 131; see Hallucinations

Walls, 73; of earth, 108
Warfare, 11, 75, 133; see Weapons
Warriors a privileged class, 118
Washing ceremony, 122, 129; see Initiation, Puberty
Wax, painting, 138; technique for painting pots, 62
Weaning rite, 121
Weapons, 56, 70, 71, 86, 110, 134; see Bows, Clubs, Knives, Slugs, Spears, Swords
Weather, magical control of, 128
Weaving, 59, 60; origin of, 15
Weddings, see Marriage
West Indies, 17
Whipping, 117, 118; ceremonial, 129
Whistles, 112
Whistling jars, 27, 140
Whorls for spindles, 29
Widows, 49, 126; purified, 78
Wigwam of Fuegians, 11
Wines, 117

Women, clothing of, 76, 109, 135, in Peru, 59
Wood, carving, 90; in house building, 108; objects, 68; vessels, 70
Wool, 74–75, 109; -bearing animals, 50; see Alpaca, Guanaco, Llamas, Vicuña

X-ray photographs of Peruvian mummies, 46
Xue, culture hero, 127

Yahgans, 10
Yarns for weaving, 60
Yucca for intoxicating drink, 119

Zapote, fruit, 109
Zaqui, ruler of Tunja, 115
Zigzags, 82; designs on pots, 80
Zipa, a Colombian chief, 115
Zipacna, an earthquake god, 33

NAZCA POTTERY, PERU

The spouted vessel with the bird design is early Nazca; the other belongs to the Middle Period. They are painted in various colors. Nazca Valley, south coast of Peru

(Case 29)

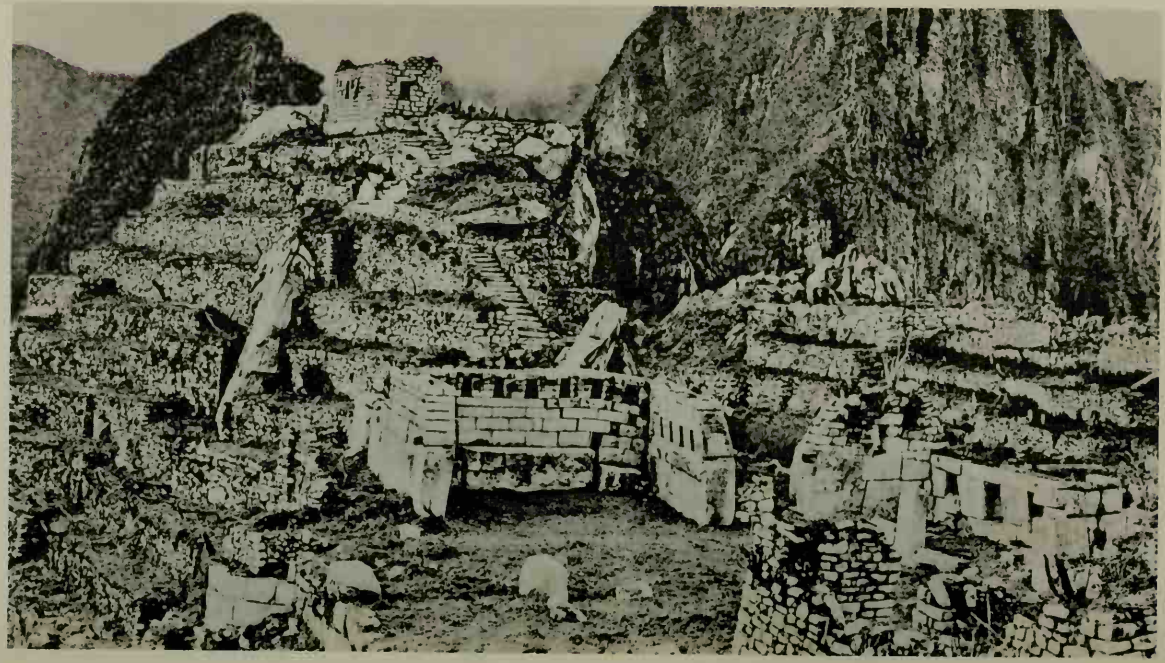
EARLY CHIMU POTTERY, PERU

Typical example of the early modeled pottery, executed in red and white. North coast of Peru

(Case 19)

LATE CHIMU POTTERY, PERU

Typical examples of the black ware vessels of the late Chimu culture. North coast of Peru
(Case 22)



INCA RUINS

The ruined city of Machu Picchu in the southern Highlands of Peru
(After Hiram Bingham)

NAZCA POTTERY, PERU

Painted pottery of the Middle Period characterized by over-elaboration of the tentacled monster motif and non-Nazca shapes

(Case 29)

DIAGUITE POTTERY, ARGENTINA

Pottery of excellent quality decorated with designs in red and black-on-white. The vessels were found at Tafi and Cololoa del Valle, Province of Tucuman

(Case 37)

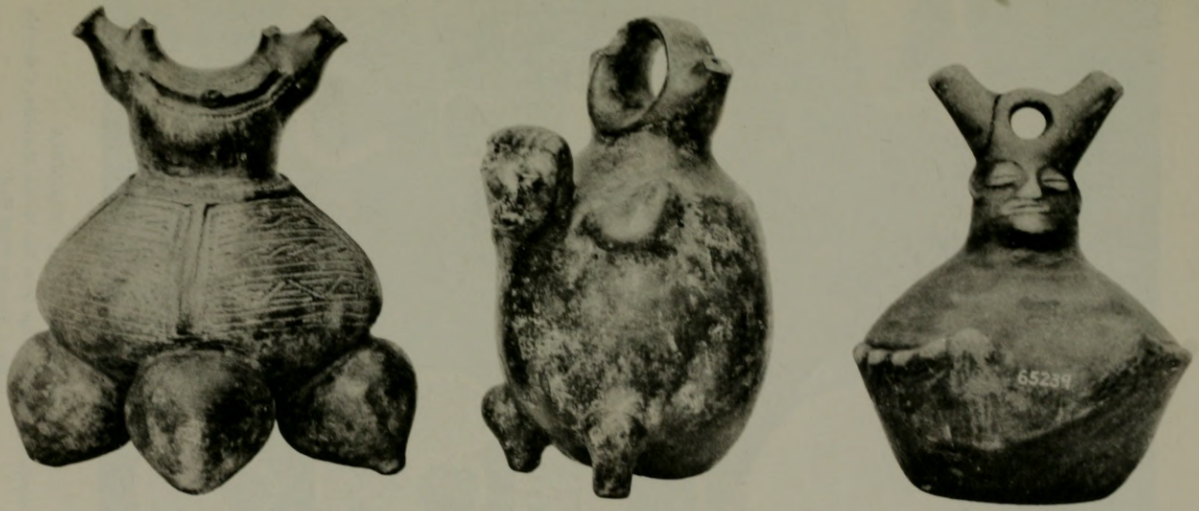
POTTERY VESSELS, COLOMBIA

Vessels decorated with polychrome designs in the negative painting technique. The combination of spouts and ribbon-handles in association with bird forms is reminiscent of coastal Peru, and probably denotes Peruvian influences

(Case 15)

CHIBCHA POTTERY, COLOMBIA

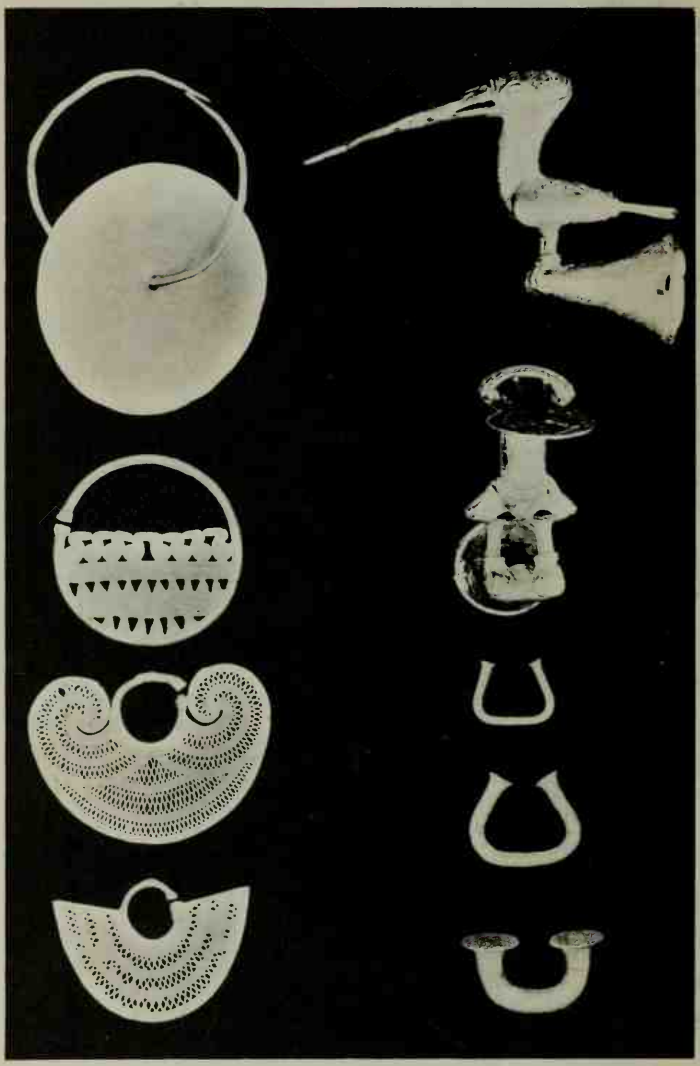
Monochrome pottery from the Chibcha region, central Colombia
(Case 15)



POTTERY FROM COLOMBIA

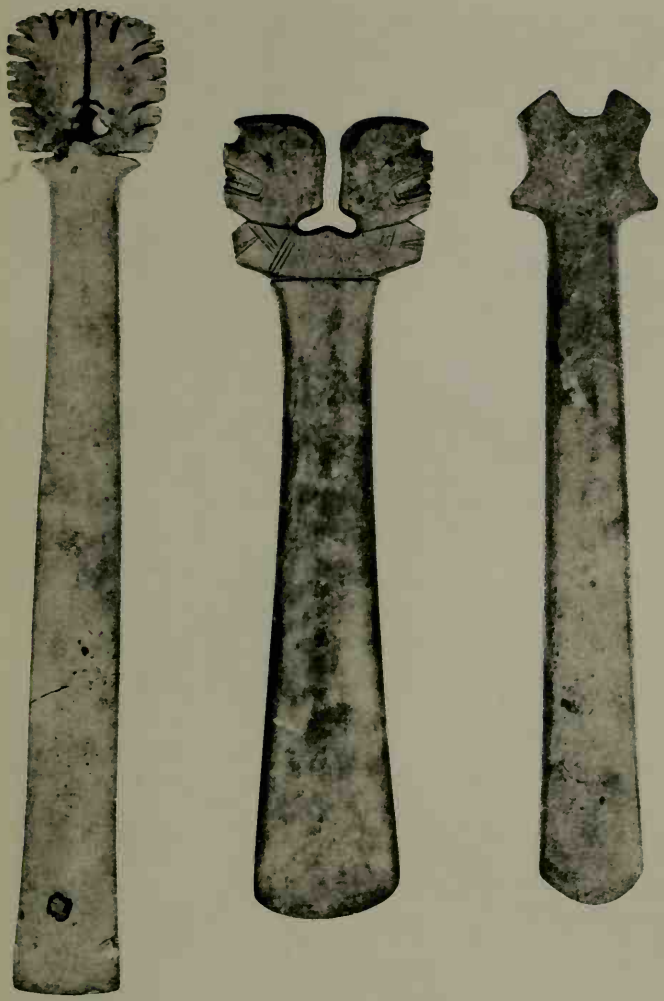
Pottery vessels with four swollen feet occur in Central America on an early horizon. This type of support may have spread from Colombia to Central America. The spouts, connected with ribbon handles, suggest influences from the coast of Peru

(Case 15)



GOLD ORNAMENTS, COLOMBIA

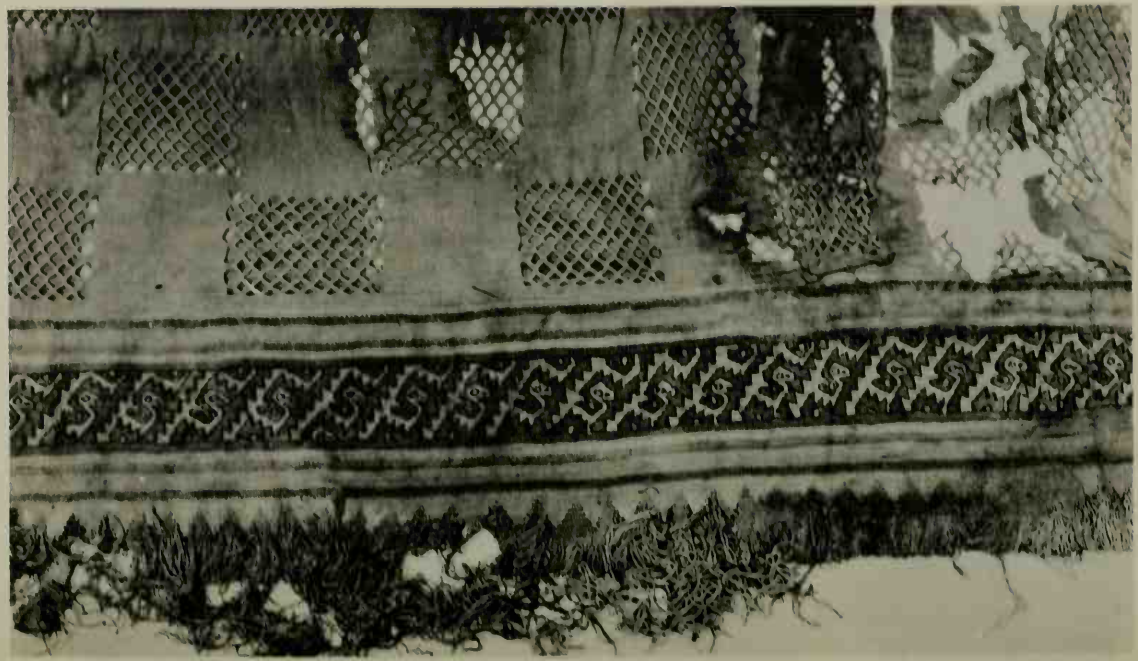
Nasal ornaments and lip-plugs from Rio Nechi, Medellin, Colombia
(Case 1, Stanley Field Hall)



STONE WORK, COLOMBIA

Ceremonial stone implements of the Tairona culture, found in the Santa Marta region of the north coast of Colombia

(Case 14)



TEXTILE FROM PERU

A shirt of unusual openwork type. The fringe is worked in tapestry technique

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